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Bulletin

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THE RÔLE AND DEVELOPMENT OF DRUG THERAPY*

L. G. ROWNTREE, M.D.

ROCHESTER, MINN.

In this symposium we are attempting to determine the value of drugs in treatment. The degree of success which will be attained obviously depends on the wisdom shown in the selection of men to represent various fields of practice. Needless to say, only those considered most eminently fitted to pass on these matters have been chosen.

Before entering on more detailed considerations, a few moments might be spent to advantage in a general survey of treatment as it exists today and in a consideration of the more important factors which have in the past, or may in the future, exercise a retarding or accelerating influence on the progress of treatment.

In considering the rôle of drugs in medicine, perspective is essential. Medical interests have become specialized to such an extent that the broad point of view is the exception. At times the sick succumb to a conflict of special interests as well as to disease. Practice is complex and each field so intricate that the specialist, seeing through his own glasses, centers only on part of the picture and loses sight of the patient as a whole. For true perspective we must return to Hippocrates. The father of medicine practiced prevention and cure. He was a general man. His therapeutic platform comprised several planks, among them surgery, drugs, dietary regimen, physical and psychic therapy. Recognizing the limitations of his day, he sought to assist Nature, the *vis medicatrix naturae,* and through the control of the vital functions of the body to promote the natural processes of repair, thereby compelling the patient himself to participate in the cure. He kept two objects in mind, to do good or at least to do no harm. Since his day, medicine has progressed, but his point of view has not been superseded.

PREVENTIVE MEDICINE

The achievements of preventive medicine have stirred the admiration of physicians and surgeons alike. From the laying down of the laws by Moses sanitation has made great progress, but since the days of Pasteur this has been unprecedented. Within the last three centuries, the average working life of English speaking men has been doubled. By the public health service, we are protected both from within and from without. Vigilance exercised at our ports protects us from foreign born infections, and sanitation throughout the land is decimating many of our endemic diseases. So far as America and western Europe are concerned, preventive medicine is responsible for the greatest medical triumphs of all time.

CURATIVE MEDICINE

In the field of treatment come medicine, surgery, and the various specialties. This division is logical and counts for efficiency, provided the specialism does not result in loss of vision. Surgery has made almost unbelievable progress during the last century, particularly in the latter half. Many conditions, formerly considered medical, admittedly fare better now under surgical treatment. Although surgical technic has improved enormously, the greatest success of surgery rests on the use of drugs. Anesthesia, antisepsis and asepsis have made possible the achievements of surgery.

With regard to surgery, it is important to recall that it is but one form of therapy and that medical treatment applied simultaneously is often of the greatest consequence. Many conditions are still looked on as purely medical or purely surgical in which combined surgical and medical treatment is essential to the best results.

Medicine has somewhat neglected certain phases of physical and psychic therapy, and since these constitute important planks in treatment, the opportunity has been seized from without, for the establishment of certain cults. The most important so-called therapeutic cults have their foundation in one or the other of the well known, but unfortunately somewhat neglected, therapeutic principles. For their existence we as a profession are responsible. Treatment must be comprehensive and include in its armamentarium all measures capable of affording relief.

Drugs find their most extensive application in the field of medical treatment; but, to the thinking physician, treatment no longer consists merely in giving drugs or applying other measures of relief. The essence of treatment consists in recognizing the pathologic process; in understanding its causes, the mechanism involved in its production and in the development of its clinical manifestations; in knowing the character, extent, and probable outcome of the resulting functional and morphologic changes; in valuing correctly the significance of clinical and laboratory findings; in ascertaining the indications for, in knowing the mode of action of, and in applying the most effective measures for its prevention, abortion, amelioration, or cure. As medicine becomes more rational it becomes more effective, and drugs play a relatively smaller but better defined rôle. The essentials of good treatment are: correct and early diagnosis;

* Chairman's address, read before the Section on Pharmacology and Therapeutics at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

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a true conception of the cause and nature of the derangement; familiarity with the manner in which the derangement can be corrected, and the knowledge of, and ability to apply the most effective measure of relief.

Factors Responsible for Retardation in Medicine.—Since time and space preclude anything approaching an historical review, let us consider briefly on the one hand the most important factors responsible for retarding progress, and on the other, the channels through which progress in treatment has come. Medicine marches with science. Since science is a matter of evolution, progress has come but slowly, and ignorance, always the chief barrier to progress, still prevails in proportions inverse to the advancement of science. While ignorance is negative in character, it gives free rein to many human frailties and prejudices, to credulity and superstition which admit free dissemination of falsehood, the combination standing for inertia, if not for stubborn opposition.

Belief in the supernatural origin of disease and superstition saddled the world with demons, witchcraft, spells, astral influences, magic art, and occult sciences, and resulted in treatment in the use of seals, charms, talismans, incantations and invocations. Absurdity reached its climax in the administration of drugs according to the signs of the zodiac. An inordinately credulous public and charlatanism within our ranks made possible the perpetration in the name of medicine of such hoaxes as signatures, similars, sympathetic ointments and Perkins' tractors. That this credulity still persists is evidenced by the fact that similar cults still flourish. In the development of Christian science, there is nothing surprising except that it has developed in an enlightened age, rather than in the dark ages. From this we learn that scientific enlightenment has not penetrated deeply into the masses and that further instruction of the public is sorely needed in matters pertaining to medicine and sciences.

Failure to appreciate duly the self limited character of the majority of diseases, that is, to appreciate the *vis medicatrix naturæ* of Hippocrates, has constituted a fundamental oversight and has made possible the many systems within and the many cults without, which have obstructed the road of medicine. Therapeutic investigation, unless adequately controlled, leads usually to false doctrines.

In the final analysis it is seen that the fundamental factors responsible for the tardiness of medical progress have been: (1) the inadequacy of science during its early period of development, to cope with the complex problems of the human organism and with the processes of life and of disease; (2) the incorrect approach to the subject, that is, the employment solely of speculation uncontrolled by observation and experimentation. Our forefathers erred in accepting supernatural influences as the cause of disease, in adopting a speculative philosophy instead of investigation and in the employment of measures of relief, about which they knew little, for diseases about which they knew less.

THE CHANNELS THROUGH WHICH PROGRESS IN TREATMENT HAS COME

Progress comes through investigation, but to the public generally, medical investigation makes no great appeal. The research worker is commonly regarded as unpractical, yet the routine practice of today is based on the investigation of yesterday. Wassermann tests, spinal fluid studies, renal functional tests and the use of antitoxins, of glandular extracts and of arsphenamin constitute substantial phases of medical practice today, yet we did not employ any of them a generation ago. The public and many physicians fail to recognize that progress comes through investigation, that practice is based on investigation, and that medical investigation means better care of the sick, greater public health, and happier communities.

1. *The Evolution of Science and the Adoption in Medicine of Scientific Methods.*—With Harvey commences experimental medicine. Demonstration and proof were subsequently demanded, theories and authorities failing longer to satisfy the profession. The "Anatomical Exercise on the Motion of the Heart and Blood in Animals," 1628, ushers in a new physiology and the science of medicine. The profession was loath to accept it; but Harvey defended his thesis despite bitter opposition, and in so doing demonstrated for all time the advantages of the experimental method.

But in the seventeenth century, medicine probably profited as much from without as from within. Not alone were experiment and demonstration needed but also training in methods of thought. This was supplied by Bacon [1] and Descartes, the former formulating "The Principles of Inductive Science," and the latter clearly distinguishing the materialistic from the vitalistic. Galileo was creating the sciences of physics and mathematics while Sanatorius, through his assistance, was applying the thermometer and the scales to physiology. Borelli was utilizing mechanics and physics in investigations of the mechanics of motion. In other words, science was in the making and the instruments and methods of science were coming into general use in medicine. Alchemy was giving way to chemistry. Iatro chemistry, mathematics, and physics were laying the foundation of a new science and this in turn was permeating medicine. Medicine passed beyond the "conjectural art" of Celsus into the realm of science.

2. *Development of Clinical Medicine.*—Through following in the steps of Hippocrates, Sydenham became the father of clinical medicine. Observation and careful clinical records resulted in the recognition of new diseases and in the clear differentiation of known diseases. His teachings pervaded the whole realm of clinical medicine and constituted a great impetus, while the contributions of Auenbrugger, Corvisart, and Laënnec placed physical diagnosis on a firm basis. Diagnosis improved as the result of better histories and clinical records, more thorough physical examinations, and appropriate laboratory studies. The fundamental sciences developed and shed much light on the nature of pathologic processes. As a result, disease was recognized earlier, was understood better, and was treated on more rational lines.

3. *The Development of Pharmacology.*—Although the use of drugs comes down from antiquity, the science of pharmacology is of recent development. Magendie, a pupil of Bichat, fired by his spirit, accomplished for treatment what Bichat had accomplished for pathology, namely, laid the cornerstone of an underlying science. In his epoch making investigations, his object was to ascertain the seat of action of the drug,

1. Macaulay has discussed the nature of the services rendered society by Bacon. He says: "It was not by furnishing philosophers with rules for performing the inductive process well, but by furnishing them with a motive for performing it well, that he conferred so vast a benefit on society."

and in his experiments he located the seat of action of upas (strychnin) in the spinal cord. The next step was taken by a pupil of Magendie, Claude Bernard, who, in 1844, localized the action of curare in the neuromuscular endings. Schmeideberg next entered the field and studied the action of drugs on the frog's heart. He and his pupils exercised a great influence on pharmacology and have been largely responsible for its present state of development.

Pharmacology is the science of the action of drugs. It utilizes the tools of science, observation, investigation, experimentation, standards and measurement. It ascertains facts concerning changes in function wrought through the action of drugs, determines the seat of action and the mechanism whereby changes are effected and not infrequently sheds light on the nature of both physiologic and pathologic processes. It has resulted in more rational drug therapy and in the deletion of many drugs and much empiricism. More than any other factor it has established dosage and channels of administration.

4. *The Relation of Chemical Constitution to Pharmacologic Action.*—To permit action of drugs, the living cell and the chemical molecule must come in contact. The cell may be looked on as the participating seat of the microchemical reactions. In it are chemicals undergoing reactions which result in the development of forces, and to it are constantly added new chemicals resulting in modification of reactions and in gross modifications of physiologic functions and properties.

In 1859, Stahlschmidt demonstrated that strychnin loses its tetanizing action when a methyl group is introduced and that the new compound assumes a curare-like action. Crum, Brown and Fraser, in 1868, in view of the ammonium base formed in this reaction, investigated other similar bases derived from alkaloids, brucin, morphin and thebain and discovered that all quaternary ammonia bases paralyze motor nerve endings, thus exerting a curare form action. This epoch making discovery called attention to the relation of pharmacologic action to chemical constitution and constituted the beginning of rational synthetic pharmacology.

Ehrlich, in 1898, enumerated five important instances selected from the whole of therapy in which a relationship was established between chemical constitution and pharmacologic action. Since that time, this number has been multiplied many fold and innumerable chemical compounds have been synthesized in the effort to obtain drugs with specific properties. Many drugs have been analyzed, that is, dissected into their component parts and the specific action of the drug as a whole determined as a property of one of its radicals. Thus Ehrlich was able to synthesize arsphenamin, and thus Macht recognized the importance of the benzyl group in opium. Such discoveries have resulted in the introduction into clinical practice of many drugs, among them, arsphenamin, neo-arsphenamin, benzyl alcohol, and benzyl benzoate.

Many isolated instances of the effects of chemical constitution and of chemical configuration on pharmacologic action are known. However, in a broad sense, progress has not been great as yet. We have, as it were, but a vision of the promised land.

5. *The Discovery of Micro-Organisms and of Their Relation to Disease.*—The discoveries of Pasteur revolutionized medical conceptions and doctrines and resulted directly in the development of bacteriology and immunology. They are responsible also for many effective public health measures, and underlie the principles of aseptic and antiseptic surgery.

Immunotherapy, at present, is sharply differentiated from pharmacology. It deals largely with the nature of infecting agents, with the mechanism of infection and with specific immunity reactions. Immunity processes are undoubtedly chemical or physiochemical in character, but are as yet but little understood. As more light is shed on these subjects, immunology and pharmacology will probably become more closely allied.

6. *Aseptic and Antiseptic Surgery.*—Following the work of Pasteur and the adoption of the germ theory, Lister applied antiseptic principles to surgery. Aseptic surgery, in reality a form of preventive medicine, proved so effective that antisepsis did not receive the attention it actually merited. With the advent of war came the need for antiseptic surgery. For obvious reasons, asepsis was unattainable and Lister's doctrines and methods were tried but with disappointing results. Failure at first was ascribed to technical inadequacies, but later to incorrectness of principles. Indeed, one eminent authority insisted that "the treatment of suppurating wounds by means of antiseptics is illusory, and that belief in its efficacy is founded upon false reasoning." Lister's clinical observations and experiences were forgotten, and were replaced by theories and by experiments in vitro, which failed to approach the actual conditions confronting the surgeon.

However, the problems were attacked by Carrel and Dakin on simple grounds, by utilization of a substance, nonirritating to the tissues and with sufficient bactericidal power to kill all varieties of microbes present in wounds. Dakin set about finding such a substance and Carrel to elaborating the most effective manner of applying it. The problem was chemotherapeutic in nature. Methods such as were employed by Ehrlich were adopted, and various antiseptics were tried. The most desirable was selected, and so modified as to meet most effectively the conditions confronting the surgeon. As a result, the Carrel-Dakin method of antiseptic treatment was evolved, and the chloramins assumed a position of considerable importance in surgical practice.

7. *Specific Chemotherapy.*—The surest, and usually the shortest, approach to the specific treatment of any disease lies through the application of experimental therapy to the experimentally induced disease in animals. Thomas, of the Liverpool school of tropical medicine, used atoxyl with good results in experimental trypanosomiasis, but sought other arsenical compounds less toxic for the host and more toxic for the parasite. Ehrlich, recognizing the true constitution of atoxyl, undertook its modification, and in the course of some years produced several arsenicals less organotropic and more parasitotropic than atoxyl. His researches resulted in the discovery of arsphenamin and in its universal acceptance in medical practice. In his work, many principles were evolved which will prove of the greatest significance to further progress in the field of specific chemotherapy.

8. *Nutrition, Metabolism.*—Where there is life there is chemical reaction, the sum total of which we term metabolism. Derangements of metabolism result often in the appearance of disease. The nature of the derangement has been ascertained in some instances. Through the development of knowledge relating to metabolic diseases and to the nature and the caloric value of foodstuffs, regulation of diet has developed

along rational lines and has resulted in definite control of the course of disease in many instances. Recent investigation has revealed the fact that normal control of various phases of metabolism is exercised by internal secretions or specific substances produced by the glands of internal secretion. Perversion of these secretions leads to disease. Thus, through the employment of thyroxin, myxedema readily yields to treatment and through the use of extract of the posterior lobe of the hypophysis, diabetes insipidus is readily controlled temporarily. Little is known concerning the action of drugs on metabolism, but since the synthesis of thyroxin and epinephrin has already been effected, it would appear that the day of drug control of metabolism is close at hand.

For normal metabolism the so-called vitamins are essential. Neither their character nor the mechanism of their action is known. Their withdrawal from the diet results in the appearance of one or the other of the so-called deficiency diseases, while their reintroduction into the diet, after their prolonged absence, frequently results in cure. Here again it is but a question of time before definite chemical compounds will replace the substances now classed as vitamins.

9. *Functional Conception of Disease.*—Recognition of the functional factors in disease is rapidly obtaining a strong foothold in medicine and is replacing the structural conception which by virtue of its very nature is entirely unsympathetic to drug therapy. While a knowledge of morphologic pathology is essential to medicine, it tends more to surgical treatment or to no treatment at all. However, the recent developments of pharmacology and the ascendency of physiologic and chemical trends in medicine (including pathology) have resulted in a more wholesome attitude toward drug treatment. In its beginning, at least, disease is derangement of function. Drugs cope more satisfactorily with derangements of function than with those of structure. The maintenance of function compatible with life, in spite of the existence of definite or even advanced structural changes, constitutes true therapeutic achievement.

LINES OF FUTURE DEVELOPMENT

The Broadening of the Scope of Pharmacology.—In the use of drugs, the general practitioner is the final court of appeal.[2] As a rule, however, drugs should never come into general use unless they are of unquestionable merit. The welfare of the public demands preliminary experimentation and adequate controls. The results in ten well controlled cases are of more value than the haphazard impressions from a thousand cases. The possibilities relative to the true value of drugs can be ascertained best by those trained in the field of experimental therapy. The channels through which drugs are introduced into general use are of considerable consequence. For instance, Ehrlich not only made brilliant discoveries but showed great insight in the selection of channels through which arsphenamin was safely and quickly introduced into practice.

Fundamentally, disease rests on functional and structural changes secondary to physicochemical reactions. Pharmacology deals with the influence of chemical, or if you please, physicochemical, agents, on the organism. In the past, pharmacologists have limited their activities, as a rule, to ascertaining the effect of these agents on healthy animals. It is now recognized that this was a great mistake. The transferring of results from mice to man and from arterial rings to the intact animal is not always justifiable or possible. For this the pharmacologists are not to blame, since the opportunity for studying the action of drugs in naturally induced diseases is afforded them but rarely.

By training, pharmacologists are better equipped than are any other class of medical men, for ascertaining the effect of drugs on disease. But access to clinical material is usually lacking, and in consequence their training is lost to medicine so far as experimental therapy is concerned. Obviously, in this connection, the initiative must come from the clinic itself. The broadening of the scope of pharmacology, involving inclusion of experimental therapy and access to wards, would accomplish much for the advancement of medical treatment and result in an influence such as that exercised by Cushny and McKenzie in England, and Hatcher and Eggleston in this country.

Guidance in the Use of New Drugs.—Drugs enter practice through two channels, through science and through commerce. In their entrance through scientific channels exaggerated therapeutic claims are made at times, as the result of a lack of critical judgment and of adequate controls. But in their introduction through commercial channels, financial considerations and lack of true appreciation of the fundamental problems preclude unbiased evaluations. Today many proprietary drug interests are not content to supply the demand, as in olden days, but they deliberately attempt to create demand. As a result, the general practitioner is placed in a peculiar dilemma. Besieged daily by advertising matter, reeking with scientific patter, he falters between the teachings of medicine and the alluring claims of advertising agencies.

The confidence to be placed in any information depends largely on its source. Too frequently, commercial advertising is utterly misleading. It would be unfair, however, to assume that all drug advertising falls into this category, for many drug houses have secured the services of medical men of excellent training and of high ideals to assist in the preparation and marketing of their products.

In many instances, it is difficult to determine whether new medicinal articles are, or are not, of merit. To assist in this undertaking, the American Medical Association has created the Council on Pharmacy and Chemistry. It consists of a body of men selected because of their special knowledge of one or more fields of drug therapy. Originally, their functions were somewhat analogous to those of a vigilance committee. The objects of the Council are: to protect the profession and public against fraud, undesirable secrecy, and objectionable advertising in connection with proprietary medicinal articles.

The Council stands for simplicity in drug therapy and for the use of useful drugs only. To this end, it has published a small volume called "Useful Drugs" in which are presented the drugs which in the opinion of the Council merit a place in this category. The preparations listed therein should receive major consideration in all courses in pharmacology and therapeutics and also in the actual treatment of the sick as it is carried out by practitioners. In addition, the Council brings together annually, in a second volume "New and Nonofficial Remedies," such new remedies as comply with the requirements of the Council and can establish

2. As a matter of fact, highly trained clinicians exercise a profound influence on therapy, and it would be better if they constituted the last court of appeal.

their eligibility. Admission of medicinal articles to "N. N. R." does not carry with it a recommendation on the part of the Council, but indicates only the ethical standing of the preparation.

These two small and inexpensive volumes, "Useful Drugs" and "New and Nonofficial Remedies," should form a part of every physician's library, and should serve as a guide in the use of remedies, old and new. Their widespread adoption will do much for the wiser use of drugs.

The Adoption of Sound Therapeutic Principles in Teaching and Practice.—Sound teaching regarding the nature of disease and the influence of drugs will take care of many of our present difficulties. This involves leadership in the realms of therapeutics as well as in the fields of physiology and pathology. Therapeutic nihilism breeds poor treatment. The failure of clinical teachers to utilize useful remedies engenders haphazard therapy in the physicians of the future. Proper teaching will prove the most effective weapon in combating the evils in advertising.

The physician must be brought to feel the responsibility for treatment as well as for diagnosis, and to accord treatment the same time and effort accorded diagnosis.

Strict attention to indications is of importance. The intelligent selection and administration of therapeutic agents, with due appreciation of the work to be accomplished and of the results to be expected, will result in greater progress. In this connection, Dr. Barker's classification of drugs into: first, those that destroy the cause; second, those that restore disturbed function; third, those that help to regulate the vital processes, and fourth, those that relieve symptoms, should prove of definite value. Treatment should be conducted as a matter of scientific investigation. Drugs should be used to accomplish certain results and the results should be checked.

The therapeutist must deal at times with intangible qualities such as strength and reserve force, and at times proof of improvement is subjective only. It cannot be emphasized too strongly, however, that therapeutic success should be measured objectively whenever this is possible. In many instances, new methods must be devised for this purpose. Graphic records, whenever possible, are of great value, especially for purposes of comparison.

Dosage and channels of administration must receive more consideration. The C/T of Ehrlich, the dose curative as related to the dose tolerated, must play an increasing rôle and will greatly modify dosage. Its application has already resulted in fundamental changes in the dosage of digitalis and in the relatively tremendous doses of sodium iodid now in use in the treatment of syphilis.

In the use of complex medicinal compounds, standardization is essential in order to furnish units of measurement for dosage, and its widespread adoption is only a matter of time.

The Need of a National Institute of Drug Therapy.—The complexity of the human organism, of life's processes and, to a less extent, of drugs, demands a breadth and depth in investigation, the details of which are beyond the grasp of one individual. Group investigation is as greatly needed as group practice. In chemotherapy, chemistry and experimental medicine are represented. Chemical detail is best handled by chemists, and therapeutic details by physicians and pharmacologists. Each deserves the best individual effort of specialists, but the results need correlation. A National Institute of Pharmacology and Experimental Therapeutics would prove of inestimable value to American medicine.

CONCLUSION

In drug therapy, recent progress has been both rapid and great. Much has been accomplished. Much remains to be done before medicine attains its good and converts the healing art into the healing science.

THE TREATMENT OF CARBON MONOXID POISONING *

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Carbon monoxid poisoning is so common in modern communities that the death rate on its account is comparable to that from diseases which, if not the commonest, rank close after the commonest. The chances for any one of us dying by carbon monoxid asphyxia are greater than by nearly any other, except one, perhaps, of what used to be considered unnatural modes of death. The therapeutics of carbon monoxid asphyxia are therefore important.

An earnest protest is, however, needed just now against the almost hysterical attitude which certain elements of the lay public, and even some medical writers, also, are taking on this subject. After all, not so many people are asphyxiated by carbon monoxid as by water. But the fear of drowning does not close the bathing beaches or stop the ferries and excursion steamers. Automobilists are usually healthy, but they all inhale more or less carbon monoxid, if not from their own car, at least from the car ahead.

Common sense and common experience, as well as thoroughly grounded scientific evidence, indicate that the idea that carbon monoxid is toxic and cumulative in amounts below one part of the gas in 10,000 parts of air is without foundation. With carbon monoxid asphyxia, as with water asphyxia, the amount of the asphyxiant and the duration of its action are of critical importance. Resuscitation from drowning and resuscitation from carbon monoxid differ markedly in certain features. But in each the ends aimed at are fundamentally the same, namely, elimination of the asphyxiant, supply of oxygen to the blood and tissues, and restoration of breathing.

A STANDARD OF EXPOSURE

We and our associates [1] have recently worked out a standard for exposure to carbon monoxid which may be expressed by the rule: Multiply the time of exposure in hours by the concentration of the gas in parts per 10,000 of air. If the product equals 3 or less there is no appreciable physiologic effect. If it equals 6, there is sometimes slight malaise. If it equals 9, a headache with some nausea is produced in most people. If it

* Read before the Section on Pharmacology and Therapeutics at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Henderson, Yandell; Haggard, H. W.; Teague, M. C.; Prince, A. L., and Wunderlich, R. M.: Report of Tunnel Gas Investigation, to be published by the U. S. Bureau of Mines and, in brief, J. Indust. Hyg. 3: 79 (July), 137 (Aug.) 1921.

equals 15, the conditions are dangerous for anything beyond brief exposure. If it is more than 15, they are extremely dangerous even for brief exposure.

Our investigations along this line were carried out under the U. S. Bureau of Mines, for the New York and New Jersey Tunnel Commissions. The results show that if the proposed tunnel for automobiles under the Hudson river is ventilated as fully as is proposed (the carbon monoxid is not to rise above 4 or 5 parts in 10,000 of air, and the time for passage will be about a quarter hour, or a half hour for trucks), its use will cause no injury whatever to the health of passengers using it daily.

On the other hand, owing to the defects of carbureters, or rather to the way they are usually adjusted, as the investigations of Mr. A. C. Fieldner and his associates in the bureau of mines have recently shown,[2] an automobile engine may produce 1 or even 2 cubic feet or more of carbon monoxid per minute. Thus, a car warming up in a small garage (10 by 10 by 15 or 20 feet, that is 1,500 to 2,000 cubic feet), with doors closed on a cold morning, makes an atmosphere dangerous to life within five minutes or less time. The frequency of fatalities under such conditions in the winter months nowadays affords a gruesomely satisfactory and practical confirmation of our theoretical deductions. Adjustment of carbureters to give a thin mixture decreases, and a rich mixture increases, carbon monoxid production. Gasoline vapor itself, except in high concentration, has little pharmacologic effect.[3] In high concentration it acts like a very bad grade of ether, inducing anesthesia and convulsions.

We have mentioned these facts regarding the problem of vehicular tunnel ventilation and regarding the small closed garage, because the contrast is instructive. The safety assured in the tunnel and the danger occurring in the garage illustrate the point that carbon monoxid is not, like lead, for instance, an accumulating poison. It is rather an asphyxiant like water; taken occasionally and in small amounts it is almost as harmless. Its use is not, however, as yet encouraged by a constitutional amendment.

UNION OF CARBON MONOXID WITH HEMOGLOBIN

Carbon monoxid is not in any degree whatever a tissue poison. The nervous disorders and lesions following asphyxia are due to the anoxemia and not to a direct action of carbon monoxid on the cells in the brain and heart. On this point the evidence now available is, in our opinion, absolutely conclusive. We shall mention here only one fact to illustrate it. One of us [4] has recently tested the question by the method of tissue culture. Pieces of living and developing brain of a chick are suspended in a hanging drop of chicken plasma at body temperature. Some of these hanging drops are placed in an atmosphere 79 per cent. carbon monoxid and 21 per cent. oxygen, while the controls are in air, which is 79 per cent. nitrogen and 21 per cent. oxygen. The former grow and develop quite as actively as the latter, although the carbon monoxid is 100 to 200 times as strong as would kill a chick by combining with its hemoglobin and thus asphyxiating it. In other words, the whole toxicity of carbon monoxid depends on its union with hemoglobin.

2. Fieldner, A. C.; Straub, A. A., and Jones, G. W.: J. Soc. Automotive Engineers, April, 1921, and Bureau of Mines Reports of Investigations, March, 1921, Serial No. 2225.
3. Haggard, H. W.: J. Pharmacol. & Exper. Therap. **16**: 401 (Dec.) 1920.
4. Haggard, H. W.: Am. J. Physiol., to be published.

TOXIC ELEMENTS IN ILLUMINATING GAS

It should be added, however, that illuminating gas and even exhaust gas of automobiles using some adulterated gasolines, contain other substances, for example, benzene (benzol), which are tissue poisons. Accordingly, by the same method it was found that illuminating gas, even in comparatively low concentration, kills the fragments of chick brain. It also kills flies and other insects which, having no hemoglobin, are absolutely immune to carbon monoxid. Investigations in this laboratory indicate that it is the benzene and related substances in illuminating gas, and not carbon monoxid, which is responsible for the anemia sometimes occurring in persons constantly around leaking gas fittings. These substances are powerful respiratory stimulants, thus augmenting the rapidity of absorption of carbon monoxid in acute and rapid poisoning. It seems to us quite possible, and even probable, that our city gas companies could supply us with cheaper gas, with more profit to themselves, and with fewer deaths from misuse of their product, if the laws and regulations allowed them to supply a gas free from such illuminants as benzene.

THERAPEUTIC DATA

Confining our attention to carbon monoxid, since it is still decidedly the chief toxic substance in illuminating gas, in exhaust gas, and in all ordinary forms of smoke, we may take as our starting point for therapeutics these dota:[5] (1) The whole effect of carbon monoxid is due to its combining with hemoglobin and excluding oxygen. (2) Its combination with hemoglobin is entirely and readily reversible. Red cells which have taken up a considerable percentage of their capacity for carbon monoxid and have given it off again are as good as before. At the end of our tunnel investigations, all of us had many red cells circulating in our blood, and rendering efficient service, which had been through this process repeatedly. We probably have some of them yet, for the experience does not shorten their lives; it rather encourages a polycythemia. Evidently the treatment designed to stimulate the formation of new red cells by bleeding and the infusion of saline solution lacks logical foundation.

TREATMENT IN CARBON MONOXID ASPHYXIA

It would seem from these facts, at first sight, that inhalation of oxygen would be indicated as the proper treatment for carbon monoxid asphyxia. A close fitting mask and valves would be needed for the administration, for when oxygen is passed through an inverted funnel held over the face, the patient gets practically none of it.

But even with a good inhaler, and a well-fitting mask and valves, the therapeutic results are, in fact, not much better than with fresh air. The patient recovers or dies, according as the injury wrought during the asphyxia, and the remedial forces of nature may decide. Doubtless it helps somewhat to keep the patient warm; occasionally also after brief and very acute asphyxia, life may be restored by artifical respiration, most readily by the prone position or Schäfer method.[6] But in most cases the physician might as well telephone, as one did, "Open the windows, and I will be up after breakfast."

There is urgent need of some specific means of treatment, something to have at hand at all city fires

5. Henderson, Yandell: Carbon Monoxid Poisoning, J. A. M. A. **67**: 580 (Aug. 19) 1916.
6. Henderson, Yandell: Resuscitation Apparatus, J. A. M. A. **67**: 1 (July 1) 1916.

for immediate application to firemen overcome by smoke; something for use at coal mine explosions, and as part of every ambulance. But until quite recently the key to unlock this problem was lacking. Now we have it. It lies in the application of an idea which one of us (Y. H.)[7] brought forward many years ago in another connection, but which most physiologists then rejected Indeed, it is only quite recently that its application to the problem before us has become clear.[8]

COURSE OF EVENTS

When a man is slowly asphyxiated by illuminating gas, or a dog is asphyxiated in the laboratory, the course of events is as follows: As the blood gradually takes up more and more carbon monoxid, the increasing oxygen deficiency induces an augmentation in the volume of air breathed per minute. This, of course, augments the absorption of the gas. But it has also another effect. It washes carbon dioxid out of the body.[9] Now the normal stimulus for breathing is the carbon dioxid, which the blood carries to the respiratory center. A time comes, sooner or later, when the lack of carbon dioxid has progressed to a point at which respiration stops, for lack of this stimulus. This is the way in which death has occurred invariably in our experiments.[10]

If, however, before death, but in profound coma, the subject is removed from the gassing chamber to fresh air, but is not further treated, the condition seen during the next half or three quarters of an hour is one of extremely feeble breathing. If small samples of blood are drawn and analyzed for carbon monoxid, it will be found that very little of the gas is eliminated during this time. The condition of acute asphyxia continues and is exacerbated by the poor respiration.

Meanwhile the carbon dioxid in the blood, starting from the low figure to which it has been brought by the earlier hyperpnea, gradually reaccumulates to some extent. It is only as this reaccumulation of carbon dioxid develops that respiration gradually returns toward the normal. It may then become again excessive, as is frequently seen in patients; for the loss of carbon dioxid has caused also a loss of alkali from the blood. This alkali must be restored by the body itself, rather than from without. But until it is restored, and until the normal balance of carbonic acid and sodium bicarbonate is recovered, the subject breathes as if he were at a great altitude. Indeed, in this respect his condition approximates that of a man who has been taken to a great altitude in an aeroplane,[11] with forced acclimatization and coma as incidents of the trip. The blood alkali is abnormally low, but this condition is not, as we once thought, an acidosis. Alkali therapy is not indicated. The belief, common just now, that any condition in which the blood alkali is low is necessarily acidosis is, as we have shown, incorrect.[12] It may be exactly the opposite condition.

With these facts before us, we can see what has not heretofore been realized, that the most acute period of tissue asphyxia, the time when the greatest injury is wrought to the nerve centers by the lack of oxygen, is the period of subnormal breathing after removal from the gas contained atmosphere. The conditions in the body are at first not appreciably better than before removal from the gassing chamber.

CARBON DIOXID AS A FACTOR IN TREATMENT

When, however, we added 8 to 10 per cent. carbon dioxid to the oxygen, an altogether different result was obtained.[8] Under inhalation of this mixture, the breathing is quickly restored to normal, or more than a normal amount. With the aid of this full ventilation of the lungs, the mass action of oxygen in the alveoli quickly displaces carbon monoxid from the blood. Certain other changes also occur in the blood, dependent on the restoration of its carbon dioxid, and the recall of alkali from the tissues. Thus, in ten or fifteen minutes the subjects (dogs) are on their feet, virtually restored.

In this treatment, we believe that we have the long sought and ideal therapy for carbon monoxid poisoning. But its application will require a rather specialized apparatus. Such apparatus was devised by us for oxygen inhalation for gassed soldiers during the war, but it did not then come into extensive use. Oxygen containing 8 per cent. carbon dioxid is not yet on the market. Developments in these matters are under way. Throughout we have had the encouragement and assistance of the United States Bureau of Mines, without which we should not have reached the result described above. Few agencies in America do more for science and humanity than this great bureau.

For miners gassed after dust explosions, and for men overcome during rescue and salvage operations in mine fires, this treatment will, we are confident, considerably diminish suffering, and, let us hope, the number of fatalities also. It has an equally direct applicability to the treatment of city firemen overcome by smoke. Heretofore there has been little that medicine could do even to alleviate the headache and nausea of the gassed firemen. For these two classes of cases, the waiting ambulance and physician can provide immediate oxygen-carbon dioxid inhalations. Under such conditions, unless our experiments are much less significant than they now appear, this therapy should be effective.

ILLUMINATING GAS POISONING

It is not so probable that the ordinary overnight case of illuminating gas poisoning will be as easily helped. These are usually cases of prolonged asphyxia; and with the delays of discovery, calling police, telephoning for the ambulance, and getting to the hospital, time is lost which may be vital. The crucial feature of the proposed inhalational therapy is the termination of the tissue asphyxia at the earliest possible moment. After the harm is wrought, mere removal of carbon monoxid from the blood will not restore degenerated nerve cells. We can only hope that even in such cases the oxygen-carbon dioxid inhalation, by restoring carbon dioxid to the blood, recalling alkali from the tissues, and supplying oxygen, may arrest the degenerative processes.

However, on this aspect of the problem, experience alone can give a decisive answer and, until it is available, we must suspend judgment.

ABSTRACT OF DISCUSSION

DR. ROYD R. SAYERS, Washington, D. C.: The U. S. Bureau of Mines is especially interested in carbon monoxid poisoning and its treatment, owing to its frequent occurrence in the industries with which we are associated. In mines it

7. Henderson, Yandell: Am. J. Physiol. **24**: 66-85 (April) 1909.
8. Henderson, Yandell and Haggard, H. W.: J. Pharmacol. & Exper. Therap. **16**: 11 (Aug.) 1920.
9. Haggard, H. W., and Henderson, Yandell: J. Biol. Chem., July, 1921.
10. Haggard, H. W.: Am. J. Physiol., August, 1921.
11. Henderson, Yandell: Science, 1919, pp. 431-441. Henderson, Yandell; Seibert, E. G.; Schneider, E. C.; Whitney, J. L.; Dunlap, Knight; Wilmer, W. H.; Berens, Conrad, Jr.; Lewis, E. R., and Paton, Stewart: Aviation, J. A. M. A. **71**: 1382-1400 (Oct. 26) 1918.
12. Haggard, H. W., and Henderson, Yandell: J. Biol. Chem. **39**: 163 (Aug.) 1919; **43**: 3 (Aug.) 1920.

occurs after fires, after explosions due to coal dust or gases, and after the use of explosives; and in smelters about the preroasters, roasters, blast furnaces, flues and bag houses. We also find it about petroleum refineries. While I do not minimize the great danger of this gas, I do want to emphasize what seems to me an unwarranted amount of fear or hysteria regarding it. Dr. Henderson has called your attention to this. Both men and animals develop a partial tolerance to this gas after having been exposed to increasing amounts over a considerable period. Dogs have developed sufficient tolerance to have no bad effects after exposure for several hours to 0.8 per cent. Recently I have seen a partial tolerance in a canary bird which we were using in some experiments. This canary can stand fully twice the concentration of a bird not previously exposed. After exposure of two hours to 0.16 per cent., it was active and able to hop from its perch to the bottom of the cage and back again, while an analysis of my own blood, I having remained with the bird the entire time, showed the blood to be 47 per cent. saturated with the gas. Continuing these experiments on myself, I remained on other days in the gas sufficiently long to produce a saturation of from 36 to 40 per cent., after which, for the elimination of the carbon monoxid, breathing pure oxygen was compared with the breathing of a mixture of about 9 per cent. carbon dioxid, 89 per cent. oxygen, and 2 per cent. nitrogen. The oxygen-carbon dioxid mixture increased the lung ventilation from 300 to 400 per cent. over the normal. Oxygen (98 per cent.) produced no increased lung ventilation. The carbon monoxid was eliminated from the blood rather rapidly during the first ten or fifteen minutes with the use of either; but some carbon monoxid could be found in the blood for five or more hours later, but could not be detected after twenty-four hours. The mixture or the pure oxygen was breathed for forty-five minutes on each test. We are trying the two methods on dogs after sufficient exposure to cause profound unconsciousness, but this work is not completed. At the present stage of our experiments for the conscious man poisoned by carbon monoxid, the breathing of pure oxygen seems to give better results as to relief of symptoms and almost as rapid elimination of carbon monoxid from the blood as does the carbon dioxid-oxygen mixture.

Dr. Yandell Henderson, New Haven, Conn.: I can guarantee, from my own experience, that although we talk a little lightly about carbon monoxid, to get one's blood 47 per cent. saturated, as Dr. Sayers did, is an experience which one does not want to undertake lightly. It is heroic. It takes a man of great equilibrium and sweet temper to do it and still be tolerant toward the paper he is to discuss. With regard to the oxygen-carbon dioxid apparatus, it is virtually an oxygen inhaler somewhat like that used in the Bureau of Mines for gassed miners. It is important to be economical of oxygen, because you cannot carry a great many cubic feet. Once you stimulate respiration it uses up oxygen pretty fast. The apparatus is now being tested out at the Bureau of Mines Experiment Station in Pittsburgh. It was developed originally for the treatment of soldiers gassed with the irritant war gases in France, but the war came to an end before it came into use. A question has been asked me with regard to the lung motor, the pulmotor and other mechanical apparatus. The standpoint which seems to me to be justified now by eight years of experience, since the first commission investigated the matter, is that even if we had an ideally perfect apparatus for giving artificial respiration, it would still be better to discourage, and even to forbid the manufacture, sale, use and introduction of such apparatus, because it leads to delay, and thus to more deaths—deaths which could and should be restorations. If a man is drowned to the point at which he has stopped breathing, and his heart is beating only feebly, or if a man has gotten hold of a live wire and his respiration has stopped, you have often only two or three minutes within which life can be restored. Now, it is impossible for us all to go around with a lung motor or any other apparatus strapped to our backs all the time: hence an often fatal delay. Laboratory experience shows also that for most cases the manual method is actually better. Dr. Meltzer was strongly of the opinion, and I think he was justified, that mechanical apparatus very often injures the lungs seriously. On the other hand, the manual, or Schäfer method has a large number of clear cut recoveries to its credit. The supremely important point, as experience proves, is that you cannot have people prepared to give the manual method, and you cannot introduce routine training, if they know that when they telephone for a lung motor or pulmotor, it will come. I am more and more strongly of the opinion that the introduction of apparatus actually increases fatalities.

THE PREVENTION OF SIMPLE GOITER IN MAN*

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Simple or endemic goiter is one of the most benign and insidious diseases of man and animals. The sum total of its ravages throughout all ages and in all lands is still unrealized by the public generally, notwithstanding the numerous reports of commissions appointed for its study. Those who live on the sea coasts fortunately have had no need to be concerned; and those who lived in goiter districts—before the days of extensive travel—grew accustomed to look on goiter as natural and normal. Indeed, in many districts of the world, it is still looked on as a mark of beauty.

Simple goiter includes all those thyroid enlargements in man and animals formerly grouped as endemic, epidemic, sporadic and physiologic. It must be sharply distinguished from exophthalmic goiter, with which it has no necessary association or etiologic relationship. Exophthalmic goiter, so far as is yet definitely known, occurs spontaneously only in man, while simple goiter occurs in all animals having the ductless thyroid. Exophthalmic goiter is not notably associated with districts, while with simple goiter this is most characteristic. Exophthalmic goiter occurs more frequently in the highly developed and civilized races, while in simple goiter race is not a factor. Simple goiter may develop sporadically in any place (even at sea, as reported on one of Captain Cook's voyages), but it is preeminently associated with certain regions or districts. The distribution of these districts of endemic goiter throughout the world was fully described by Hirsch, in 1860. The actual incidence of goiter within a given district is still quite unknown. With the information at present available, however, one can distinguish between mildly and severely goitrous districts. As compared with certain other districts, for example, the Alps and the Himalaya regions, our most important districts, namely, the Great Lakes Basin and the Cascade Mountain regions of Oregon, Washington and British Columbia, would be classified as mildly goitrous. The mildness or severity of a district may be determined by the incidence of myxedema or cretinism—a fact known to Morel and expressed in his famous dictum, "Goiter is the first halting place on the road to cretinism" (Le goitre est la première étape sur le chemin qui conduit au cretinisme).

ETIOLOGY

The ultimate cause of simple goiter is totally unknown, notwithstanding a relatively large amount of study. The immediate cause is a lack of iodin. The

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* From the Laboratories of Western Reserve University, Cleveland, and Montefiore Hospital, New York.
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enlargement, therefore, is a symptom and may result from any factor which increases the iodin needs of the organism, as in certain types of infection, or which interferes wtih the normal utilization of iodin; or it may result from actual experimental deprivation of iodin. The conception that it is due to a contagium vivum in the sense that this term is ordinarily used may be abandoned. Water has been associated as an etiologic factor by all peoples as far back as history goes. The American Indians (Barton) and the natives of Central Africa (Livingston) seem to have been as strongly convinced of the relation of water to the disease as was Hippocrates. If water is a factor, it would seem that it is the absence rather than the presence of some substance, which is to be considered, since goiter is associated with the purest of waters, chemically and bacteriologically as, for example, in Portland, Ore., and in Seattle and Tacoma, Wash., where there has been a rapid increase in goiter since these cities began to take their water supplies from the Cascade Mountains. After consideration of all the various substances, agents and theories that have been put forward as having a rôle in the etiology of goiter, we at present must fall back on the view that thyroid hyperplasia (goiter) is a compensatory reaction arising in the course of a metabolic disturbance and immediately depending on a relative or an absolute deficiency of iodin.

PATHOLOGIC ANATOMY

Anatomically, a wide range of changes may be present, depending on the species of animal and on the stage (duration) of the disease. It always begins with a decrease in the colloid material and a hypertrophy of the epithelial cells, at first cuboidal, later columnar, with infoldings and plications. In man and fowls, the stage most commonly observed is characterized by an abundance of colloid material—the so-called cystic or colloid goiter of the older writers—while in dogs, sheep, cattle, pigs, fish, etc., the accumulation of colloid is seen only in the late regressive or quiescent stages. In man, the adenomatous form (struma nodosa) is very common, but it is exceedingly rare in all the lower animals. These adenomas, in all probability, arise from fetal cell rests. The stimulus which initiates the growth of the cell rests (adenomas) and that which initiates the growth of the more differentiated thyroid tissue are probably identical. These growths have many of the attributes of tumor, in that their growth may not be arrested by iodin administration or by the natural physiologic compensation.

EXPERIMENTAL PHYSIOLOGY

No accomplishment in preventive medicine has a firmer physiologic and chemical foundation than that underlying goiter prevention, and, as the work of prevention is based on certain of these facts, the more important may be reviewed:

1. The active principle of the thyroid is a very stable organic compound of iodin, first recognized by Baumann, in 1895, and recently (1916) isolated in crystalline form, by Kendall.

2. The developmental stage of all goiters is characterized by an increased blood flow, an increase in the size and number of epithelial cells, a decrease in the stainable colloid, and a marked absolute decrease in the iodin store. The decrease in the iodin store precedes the cellular hypertrophy and hyperplasia.

3. Similar changes (compensatory hyperplasia) invariably occur in the remaining portion of the gland, when a sufficient portion of the entire gland is removed. The amount of gland it is necessary to remove in order to cause compensatory hyperplasia varies somewhat with the species of animal, definitely, with the age, diet, and the presence or absence of iodin.

4. The administration of exceedingly small amounts of any salt of iodin in any manner completely protects the remaining thyroid against compensatory hyperplasia, even after the removal of three fourths of the normal gland in cats, dogs, rabbits, rats and fowls. Halsted and Hunnicutt reported a series of partial removals in dogs in which they failed to obtain compensatory hyperplasia, while Loeb has recently reported a series of partial removals in guinea-pigs in which iodin failed to prevent the compensatory hyperplasia, although desiccated thyroid still protected. He concluded that regeneration was physiologically different from spontaneous hyperplasia or simple goiter. The explanation for Halsted's results was probably that the animals were in contact with a source of iodin, while the most probable explanation for Loeb's results is that he removed too much thyroid, since, as shown by Marine and Lenhart, in 1909, iodin will not protect even in dogs if more than three fourths of the gland is removed, while desiccated thyroid will protect the animal against thyroid regeneration even after the removal of as much as nine tenths.

5. If most of the thyroid gland is removed before or in the early stages of pregnancy, and rigid precautions are taken to exclude iodin, the young at birth will have enlarged thyroids, as first shown by Halsted in dogs; while, if iodin is available, the young at birth will have normal thyroids.

6. A milligram of iodin, given at weekly intervals, has been found sufficient to prevent thyroid hyperplasia in pups.

7. Thyroid tissue has an extraordinary affinity for iodin, as has been demonstrated in in vitro perfusions of surviving thyroids, and also by injecting intravenously small amounts of some soluble salt of iodin into the intact animal.

8. If the iodin store in the thyroid is maintained above 0.1 per cent., no hyperplastic changes, and therefore no goiter, can develop.

The foregoing experimental data seem to us sufficiently complete to demonstrate the underlying principles of goiter prevention, and the ease with which they may be applied. The first instance in which these facts were utilized in the prevention of goiter on a large scale occurred in 1909 and 1910. Working with endemic goiter in brook trout, Marine and Lenhart were able to demonstrate that iodin added to the water in a concentration not exceeding 1:1,000,000 arrested or prevented the development of thyroid hyperplasia (goiter). Since then, the method has been successfully applied on a large scale by several observers in the prevention of goiter in cattle, sheep, pigs and poultry.

To our knowledge, the prevention of human goiter was not attempted on any large or practical scale until 1917, when we began work with the school population of the city of Akron, although in Cleveland it had been strongly urged and had been used by some physicians for several years. Briefly, the method as applied to man consisted in the administration of 2 gm. of sodium iodid in 0.2 gm. doses, distributed over a period of two weeks,

and repeated each autumn and spring. This amount of iodin is excessive, and far beyond the needs of the individual or of the ability of the thyroid to utilize and store it. One gram distributed over a longer period would be better. The form or mode of administration of iodin is of little consequence. The important thing is that iodin for thyroid effects should be given in exceedingly small amounts, and it is believed that most of the untoward effects recorded are due to the excessive doses employed, or, more concretely, to the abuse of iodin.

The results of our two and one-half years' observations on schoolgirls in Akron are as follows: Of 2,190 pupils taking 2 gm. of sodium iodid twice yearly, only five have developed enlargement of the thyroid; while of 2,305 pupils not taking the prophylactic, 495 have developed thyroid enlargement. Of 1,182 pupils with thyroid enlargement at the first examination who took the prophylactic, 773 thyroids have decreased in size; while of 1,048 pupils with thyroid enlargement at the first examination who did not take the prophylactic, 145 thyroids have decreased in size. These figures demonstrate in a striking manner both the preventive and the curative effects. Klinger has recently (1921) reported even more striking curative results in the schoolchildren of the Zürich district. He worked with school populations in which the incidence of goiter varied from 82 to 95 per cent., while our maximum incidence in Akron was 56 per cent. With such a high natural incidence of goiter, his observations necessarily deal more with the curative effects. Thus of 760 children, 90 per cent. were goitrous at the first examination. After fifteen months' treatment with from 10 to 15 mg. of iodin weekly, only 28.3 per cent. were goitrous, of a total of 643 children reexamined.

The foregoing results were obtained in adolescents. There are two other periods in life when simple goiter frequently develops, namely, (1)) in fetal life and (2) during pregnancy. While the thyroid enlargements developing around the age of puberty are more common, they are not more important than those developing during pregnancy and fetal life. The higher birth mortality of infants with congenital goiter is well known. The thyroid enlargement of both mother and fetus may be prevented by giving 2 gm. of sodium iodid, or its equivalent in iodin in any other form, during the first half of pregnancy.

UNTOWARD EFFECTS

The dangers of giving iodin, in the amounts indicated, to children and adolescents are negligible. Exophthalmic goiter and iodism are the two important conditions to be looked for. No case of exophthalmic goiter developed in the series reported by Klinger or by us, although in both instances such cases were carefully looked for. Much has been written of iodin-exophthalmic goiters, but a study of the case reports reveals the fact that they resulted from the use of excessive (according to physiologic standards) amounts of iodin, or of desiccated thyroid. In adults, the possibility of aggravating a mild exophthalmic goiter or even the production of the syndrome in susceptible individuals must be considered. Again, the risk is slight. Iodin should not be given in any frank case of exophthalmic goiter unless the patient can be daily observed, and then it should be administered only in milligram doses. Iodism was observed in eleven cases among the schoolchildren of Akron during the two and one-half years of observation. Most of these cases were very mild, and the girls did not stop the treatment. Klinger did not observe a single instance in sixteen months' observation on more than 1,000 children, although iodism was carefully looked for.

SUMMARY

Simple or endemic goiter in man may be prevented as cheaply and as simply as in the lower animals, by the administration of 3 to 5 mg. of iodin twice weekly, over a period of a month, and repeated twice yearly. Klinger in Switzerland has reported as striking, and nearly as extensive, results as those obtained by us in Akron. In young individuals, with goiter of recent development, the curative effects of exceedingly small amounts of iodin are as marked as one sees in the goiter of animals.

There are no dangers worthy of consideration associated with the administration of the quantities of iodin used by Klinger or by us. Simple or endemic goiter most commonly develops during (1) fetal life, (2) around the age of puberty, and (3) during pregnancy, and we believe that any plan which provides for its control during these three periods of life will practically eliminate endemic goiter. Goiter in the mother and fetus can be prevented as simply as that of adolescence, but, practically, it would seem that it is a responsibility of individual physicians, supplemented by public education. The prevention of goiter of childhood and adolescence should be a public health measure, best administered through the schools in order to combine the important additional factor of education. Beginning with the period of puberty, goiter occurs approximately six times as frequently in females as in males. The question, therefore, whether general prophylaxis should include both males and females would depend to some extent on whether the particular district was mildly or severely goitrous; hence the need for accurate surveys. The age of beginning and stopping the use of iodin would depend to some extent on race and climate. In the United States, probably the maximum of prevention coupled with the minimum of effort would be obtained by giving iodin between the ages of 11 and 17 years.

The prevention of goiter means vastly more than eliminating cervical deformities. It means, in addition, the prevention of those forms of physical and mental degeneration, such as cretinism, mutism and idiocy, which are dependent on thyroid insufficiency. Further, it would prevent the development of thyroid adenomas, which are an integral and essential part of endemic goiter in man, and due to the same stimulus. These multiple, circumscribed benign growths have many of the attributes of tumor, one of which is that their growth once initiated is frequently not controlled by iodin, as are all simple hyperplasias. The terminal metamorphoses are far more serious than those of simple hyperplasia, since, in addition to hemorrhage, necroses, cyst formation, etc., probably 90 per cent. of the malignant tumors of the thyroid arise from these adenomas.

If the prevention of goiter is good preventive medicine, it is better preventive surgery. With so simple, so rational and so cheap a means of prevention at our command, this human scourge, which has taken its toll in misery, suffering and death throughout all ages, can and should be controlled, if not eliminated.

VESICAL CALCULUS*

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Recent literature on vesical calculi contains many reports of large or peculiar stones, complications, and choice of operation. There are, however, only three articles in which a large number of cases are reported, namely, Barney [1] reporting 455 cases from the Massachusetts General Hospital; Thomson [2] reporting 2,962 from Canton, China, and Assendelft [3] reporting a collection of 630 cases from several Russian hospitals.

The data of this article are based on a study of the records of 621 patients with vesical calculus examined at the Mayo Clinic between June 1, 1907, and April 1, 1921, approximately fourteen years.

GENERAL CONSIDERATIONS

The cases have been divided into two groups, (1) patients with ureteral-bladder stones, or those who had histories of kidney colic and who on our examination had a stone of ureteral origin without accretion in the bladder, removed from the bladder, and (2) true bladder stones, or those which had formed entirely or partially in the bladder.

Fifteen patients had ureteral-bladder stones; thirteen were men and two were women; the oldest was 71, the youngest 22; the average age was 45.1.

Litholapaxy was performed in five; the stone was removed with a specimen taken through the cystoscope in six; it was passed following cystoscopy in three, and in one it was not removed.

There was no mortality in this group, and no further data concerning it are considered in this paper, all percentages being based on 606 cases, or constituent groups of the true bladder stone.

Of the 606 patients with stone in the bladder, 577 (95.21 per cent.) were males, and twenty-nine (4.78 per cent.) were females. The oldest was 86, the youngest 4; the average age was 55.59 years.

TABLE 1.—AGES BY DECADES

	Number	Per Cent.
From 1 to 10	4	0.66
From 11 to 20	13	2.14
From 21 to 30	34	5.61
From 31 to 40	59	9.73
From 41 to 50	71	11.71
From 51 to 60	164	27.06
From 61 to 70	183	30.19
From 71 to 80	69	11.38
From 81 to 90	9	1.48

It is of interest that the decade of highest incidence (30.19 per cent.) was between 61 and 70, while between 51 and 71 incidence was 57.25 per cent. Seventy and eleven hundredths per cent. of the patients were more than 50. Thomson reports that 43 per cent. occurred under the age of 20, and 84 per cent. were under 51. Assendelft reports 92 per cent. of 630 patients under 30; Barney reports 67 per cent. between 50 and 80 years, practically the same incidence as in our series. Only four (0.66 per cent.) were under 10, which is in striking contrast to 25 per cent. of Thomson's series, and the 77 per cent. under 10 in Assendelft's series. Suñer [4] reports forty cases of bladder stone in children. Cahill [5] states that in the children's surgical service in Bellevue Hospital no bladder calculi were reported until 1920, when there were three cases in patients of 2, 9 and 3 years. Cahill also states that the reports of the Post-Graduate Hospital, New York, show less than 2 per cent. of bladder stone in children. In our four cases, three of the stones were removed by suprapubic cystostomy, and one with forceps through the urethra.

TABLE 2.—SEX, AGE,* AND METHOD OF REMOVAL

Method of Removal	Cases	Male No.	Male %	Female No.	Female %	Oldest	Youngest	Average Age, Years
Lithotrity	153	138	90.19	15	9.8	79	16	49.05
Suprapubic	395	385	97.46	10	2.53	86	4	58.1
Through the cystoscope	14	11	78.57	3	21.42	74	28	48.5
Perineal	14	14	100	..	.....	81	43	67.0
Through the urethra with forceps	1	..	.....	1	100	7	7	7.0
Not removed	29	29	100	..	.....	79	22	52.79

* The average duration of symptoms was 5.86 years. The age of the patients at the onset of symptoms was: the oldest, 81; the youngest, 1; the average was 49.52 years.

The diagnosis of bladder stone by means of a "feeler" has been discarded by most urologists in favor of the roentgen ray and the cystoscope. The accuracy of these methods is shown in Table 3.

TABLE 3.—ACCURACY OF ROENTGEN RAY AND CYSTOSCOPE

	Patients Examined No.	Patients Examined %	Positive No.	Positive %	Negative No.	Negative %	Indeterminate No.	Indeterminate %
Roentgen ray	449	74.09	345	76.83	91	20.26	13	2.89
Cystoscope	459	75.74	445	96.94	10	2.17	4	0.87

The high precentage of positive diagnoses with the cystoscope (96.94 per cent.) must be explained by the fact that the cystoscopist usually had the benefit of seeing the plates before cystoscopy; also in some instances when poor plates were reported "negative" and a request made for a reray, the stone was discovered by cystoscopy and the reray was not made.

Of 606 cases, there were nineteen (3.13 per cent.) undiagnosed and discovered at operation. The diagnostic analysis of these nineteen cases is given in Table 4.

TABLE 4.—DIAGNOSTIC ANALYSIS OF NINETEEN CASES

	Cases
Negative roentgen-ray report	6
No roentgen-ray report	13
Negative cystoscopic report	3
No cystoscopic report	16
Operated on for prostatic hypertrophy	17
Operated on for stricture	2

The three patients in whom cystoscopic examination for stone was negative had large hypertrophied prostates and one had a cicatricial posterior urethra also. All had trabeculated bladders and many cellules. Two had two small stones each, and one had one small stone. We may, therefore, estimate the efficiency of a combined roentgen-ray and cystoscopic examination

* From the Section on Urology, Mayo Clinic.

* Read before the Section on Urology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Barney, J. D.: Observations on the Treatment of Vesical Calculi: An Analysis of 455 Cases from the Massachusetts General Hospital, Boston M. & S. J. **131**: 462-464, 1919.

2. Thomson, J. O.: Urinary Calculus at the Canton Hospital, Canton, China, Surg., Gynec. & Obst. **32**: 44-55 (Jan.) 1921.

3. Assendelft, E.: Bericht über 630 stationär behandelte Steinkranke, Arch. f. klin. Chir. **60**: 669-686, 1900.

4. Suñer, E.: Bladder Stones in Children, Arch. Españoles de Pediat. **3**: 449 (Aug.) 1919; abstr. J. A. M. A. **73**: 1562 (Nov. 15) 1919.

5. Cahill, G. F.: Stone in the Bladder in Children, Internat. J. Surg. **33**: 389, 1920.

for bladder stone at 96.87 per cent. Additional lesions discovered by cystoscopy are given in Table 5.

TABLE 5.—ADDITIONAL LESIONS DISCOVERED BY CYSTOSCOPY

	No.	Per Cent.
Patients cystoscoped	459	75.74 of 606
Patients not cystoscoped	147	24.25 of 606
Patients with cystitis	400	87.14
Patients with prostatic enlargement	277	60.34 45.7 of 606
Patients with trabeculation	118	25.7
Patients with stricture of the urethra	45	9.8
Patients with deformity of the bladder	24	5.22
Patients with diverticulum	21	4.57
Patients with tumor of the bladder	15	3.26
Patients with atony of the bladder	11	2.39
Patients with tuberculosis of the kidney	1	1.96

Items of interest in these findings are:

1. Stone occurred in a tuberculous bladder in only one patient. Stone in the bladder and tuberculosis of the bladder certainly rarely coexist, owing probably to the fact that urinary tuberculosis usually occurs before prostatic age, and that the severity of the cystitis prevents retention. There was a stricture of the urethra in this case, which probably explains the stone formation.

2. Prostatic obstruction was present in 277 cases and urethral stricture in forty-five, or a total of 322 cases (70.14 per cent.) with urethral obstruction.

3. In twenty-one patients a diverticulum of the bladder was found on cystoscopy; in twelve others it was found at operation, making a total of thirty-three (5.44 per cent.) who had diverticula which seemed to be a causative factor in the formation of stone. In seventeen of these there was stone in the bladder alone; in six stone in the diverticulum alone, and in ten stones in both diverticulum and bladder. During this period there were 226 patients with diverticula of the bladder, or an incidence of 14.6 per cent. of stone in the cases of diverticula.

Fifteen patients had stone and tumor in the bladder; two of these also had diverticula, the growth being in the diverticulum in one and just outside it in another.

Two hundred and twenty-eight patients had an average of 4.3 ounces of residual urine, and in twenty-six the residue was questionable. Some of the patients who had prostatic hypertrophy and stone in the bladder emptied the bladder completely so long as the stone remained in the bladder, but required prostatectomy for retention after its removal. On the other hand, there was sometimes an inflammatory enlargement of the prostate causing retention which subsided entirely after the removal of the stone. In many cases in which a diverticulum was present and no retained urine was obtainable by catheter from the bladder, a cystogram made after voiding the medium showed the bladder to be empty, but retention in the diverticulum.

The literature, both ancient and recent, is crowded with reports of large or unusual bladder stones. Apparently the largest authentic stone on record is that reported recently by Randall,[6] which weighed 64 ounces when removed, and 54 ounces after drying. Thirty-eight and one-half ounces seems to be the largest stone removed with recovery of the patient (Smith[7]). Osgood[8] reports from the literature fifty cases of large stone, twenty from necropsy and thirty in which operation was performed; the mortality in the latter was 50 per cent. Necropsy reports show several stones weighing as much as 51 ounces.

The largest stone in our series was 6.5 by 5 cm.[9] This seems relatively small in view of the fact that the average duration of symptoms was 5.86 years. However, there is undoubtedly a great variation in the growth of stones, and time is only a minor factor. Hijmans[10] reports eleven large stones weighing 110 gm. found in the bladder six years after cystostomy. Hunner[11] found a stone that had formed in two or three weeks around a piece of rubber drain. In one of our patients a well defined stone had formed around a catheter head in four weeks.

Of the 606 patients, 386 (67.01 per cent.) had a single stone. The diameters were 1 cm. or less in sixty-seven; 2 cm. in 122; 3 cm. in 114; 4 cm. in forty-eight, and 5 cm. or more in ten. The size was not mentioned in twenty-five. One hundred and ninety (32.98 per cent.) had multiple stones; seventy-two had two stones; twenty-six had three stones; eight had four stones, and eighty-four had five or more.

Stone in other portions of the urinary tract coexistent with the stones in the bladder occurred as indicated in Table 6.

TABLE 6.—OCCURRENCE OF STONE IN OTHER PORTIONS OF THE URINARY TRACT COEXISTENT WITH STONE IN THE BLADDER

	Positive		Questionable	
	No.	Per Cent.	No.	Per Cent.
Renal lithiasis	14	2.31	12	1.98
Ureteral stones	6	0.99	8	1.32
Prostatic stones	8	1.32	2	0.33
Urethral stones	1	0.16		

A severe renal colic, even several times repeated, is often forgotten by the patient with bladder stone as soon as the kidney stone passes into the bladder, particularly if several years have elapsed between the cessation of the colics and the onset of bladder symptoms, since the average patient sees no connection between the two and does not mention the kidney symptoms unless he is questioned. It is necessary, therefore, on finding a bladder stone, to question each patient in detail with regard to previous pain in the region of the kidney. Such data have been carefully elicited in the majority of our histories.

TABLE 7.—PREVIOUS RENAL LITHIASIS

	Cases	Per Cent.
Renal colic, positive	101	16.66
Renal colic, questionable	9	1.48
Stones passed	40	39.6 of 101
Stones not passed	60	59.4 of 101
Operations on the kidney	6	0.99

It is of interest that, in spite of severe cystitis in most cases, histories of chills, fever and sweats were recorded in only forty-one (6.76 per cent.), and in at least sixteen of these there was coexisting pyelonephritis, leaving twenty-five (4.12 per cent.) in which the bladder or urethra might be the focus. This low

6. Randall, A.: Giant Vesical Calculus, J. Urol. **5**: 119-125 (Feb.) 1921.
7. Smith, E. C.: Large Vesical Calculi, Surg., Gynec. & Obst. **29**: 481-484, 1919.
8. Osgood, A. T.: A Large Vesical Calculus, Tr. Am. A. Gen. Urin. Surg. **8**: 125-137, 1913.
9. Martin, S. P.: Dumb-Bell Stone in Diverticulum of Urinary Bladder, Ann. Surg. **67**: 94-95 (Jan.) 1918.
10. Hijmans, F.: Growth of Urinary Calculi, Nederlandsch Tijdschr. v. Geneesk. **2**: 1159 (Oct. 18) 1919; abstr. J. A. M. A. **74**: 498 (Feb. 14) 1920.
11. Hunner, G. L.: Diseases of the Bladder. in: Kelly, H. A., and Noble, C. P.: Gynecology and Abdominal Surgery, Philadelphia, W. B. Saunders Company **1**, 1919.

percentage and the low percentage of metastasis in cases of tumor of the bladder seem to corroborate the fact that the bladder has a relatively poor lymphatic supply. The presence of chills, fever and sweats in a given case should, therefore, suggest an extension of the infection to other organs than the bladder.

An effort was made from all the data recorded in each case in the series to establish the probable source of the stone, whether bladder, kidney or urethra, and, if vesical, to establish the principal cause. The results of these analyses are shown in Table 8.

TABLE 8.—PROBABLE SOURCE OR CAUSE OF STONES IN THE BLADDER

	Retention from												
	Prostate	Stricture	Atony	Deformity of the Bladder	Cystitis	Cystitis	Foreign Body	Diverticulum of the bladder	Kidney	Urethra (Prostatic)	Congenital Stones	Pseudostones	Indeterminate
Lithotrity...	36	12	3	2	..	42	4	5	45	2	..	1	1
Through cystoscope.	..	2	..	..	..	3	2	1	6	..	..	..	..
Through urethra.....	..	..	..	..	..	..	1	..	..	..	..	..	..
Suprapubic cystostomy	204	20	6	1	3	58	14	24	43	4	1	..	17
Perineal cystostomy....	11	2	..	..	..	1	..	..	..	..	..	..	..
Stones not removed....	15	2	..	..	..	2	..	3	5	..	..	..	2
Total.....	266	38	10	3	3	105	21	33	99	6	1	1	20
Per Cent...	43.89	6.27	1.65	0.49	0.49	17.32	3.46	5.44	16.33	0.99	0.16	0.16	3.3

Cystitis was given as the cause rather than the result of stone only when there was apparently no other reason for the formation. Numerous cases have been reported in which foreign bodies of various types were the nucleus of bladder stones, and instances of their remaining in the bladder for as long as seventeen years without symptoms have been noted.[12] Foreign bodies were demonstrated to be the nucleus in twenty-one (3.46 per cent.) of our series.

TABLE 9.—CAUSE OF TWENTY-ONE CASES* (3.46 PER CENT.) OF FOREIGN BODY IN THE BLADDER OF MALES

	Cases	Per Cent.
Lithotrity:		
Rubber tissue	3	14.28
Silk sutures	2	9.52
Catheter head	1	4.76
Surgical:		
Hairpin	4	19.4
Suture	3	14.28
Gauze	3	14.28
Suture and curved needle	1	4.76
Catheter head	1	4.76
Knife-blade	1	4.76
Part of LaForte guide	1	4.76
Piece of bone from fracture of pubis	1	4.76

* Seven of these cases have been reported by Judd (Journal-Lancet **36**: 474-477 [Aug. 15] 1916).

Stone in the bladder in the female is a comparatively rare occurrence; hence the causes are of interest.

I have tabulated under the name "pseudostone" a stone 2 by 1 cm. which I attempted to crush with a lithotrite; as I was unable to break the stone, it was removed whole through the urethra. Examination showed it to be a piece of flint which the patient later confessed having passed into the bladder.

TABLE 10.—CAUSE OF TWENTY-NINE CASES (4.78 PER CENT.) OF STONE IN THE BLADDER OF FEMALES

Probable Source of Stone:	Cases	Per Cent.
Cystitis	9	31.03
Foreign body	8	27.58
Kidney	8	27.58
Diverticulum	2	6.89
Atony	1	3.44
Pseudostone, flint	1	3.44
Foreign Body:		
Hairpin	4	
Catheter head	2	
Silk suture	1	
Rubber tissue	1	

Twenty-nine of 606 patients had positive diagnoses of stone and were not operated on, and 577 had single or multiple stones removed (Table 11).

That the mortality was approximately the same with or without an associated operation is partially explained by the fact that such operations were performed only in the better surgical risks. Only the stones were

12. Bashinski, B.: An Unusual Type of Vesical Calculus, Arch. Pediat. **35**: 615-616, 1918. Cook, P. H.: An Unusual Case of Vesical Calculus, Interstate M. J. **25**: 419-420 (May) 1918. Maxwell, Alice F.: A Gauze Sponge Forming the Nucleus of a Vesical Calculus, J. A. M. A. **75**: 1253 (Nov. 6) 1920. Packard, F. R.: An Analysis of Two Hundred and Twenty-One Cases of Foreign Body Introduced into the Male Bladder per Urethram, with Report of a Recent Case, Ann. Surg. **25**: 588-599, 1897. Park, C. E.: Peculiar Case of Vesical Calculus, Internat. J. Surg. **31**: 123, 1918.

TABLE 11.—METHODS OF REMOVAL OF STONES IN THE BLADDER: RESULTS

	Ether		Gas		Local		Sacral		Anesthetic Not Stated		Total	
	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Lithotrity:												
Patients	38	24.83	..	..	115	75.16	..	..	..	..	153	25.24
Average days in hospital	4.41	.....	..	..	1	.....	..	..	..	..	4.2	.....
Mortality	1	.....	..	..	1	.....	..	..	..	..	2	1.3
Average number of days of life after operation	16	.....	..	..	3	.....	..	..	..	..	9.5	.....
Recurrences (first)	4	33.3	..	..	8	66.6	..	..	..	..	12	7.84
Through Cystoscope:												
Patients	2	14.28	..	..	12	87.71	..	.	..	..	14	2.31
Average days in hospital	4	.....	..	..	..	.....	..	..	..	..	4	.....
Mortality	..	.....	..	..	..	.....	..	..	..	..	..	.....
Recurrences (first)	..	.....	..	..	1	.....	..	..	..	..	1	7.14
Through Urethra:												
Patients	1	.....	..	..	..	.....	..	..	..	..	1	0.16
Average days in hospital	2	.....	..	..	..	.....	..	..	..	..	2	.....
Mortality	..	.....	..	..	..	.....	..	..	..	..	..	.....
Recurrences (first)	..	.....	..	..	..	.....	..	..	..	..	..	.....
Suprapubic Cystostomy:												
Patients	372	94.17	1	0.25	6	1.51	3	0.75	13	3.29	295	65.18
Average days in hospital	14.02	.....	37	..	27.83	.....	10.3	..	14	..	14.27	.....
Mortality	31	.....	..	..	3	.....	..	..	..	..	34	8.6
Average number of days of life after operation	15.5	.....	..	..	12.3	.....	..	..	..	..	14.7	.....
Recurrences (first)	18	.....	..	..	..	.....	..	..	..	..	18	4.55
Perineal Cystostomy:												
Patients	11	78.57	..	..	..	.....	..	..	3	21.42	14	2.31
Average days in hospital	11.54	.....	..	..	..	.....	..	..	45	..	14.33	.....
Mortality	..	.....	..	..	..	.....	..	..	..	..	..	.....
Recurrences (first)	1	.....	..	..	..	.....	..	..	..	..	1	7.14

removed in the bad risks, and other operations were deferred until conditions were more favorable.

RECURRING STONE

Stones do not occur in the bladder without cause, and it should be the surgeon's duty, if possible, to remove this cause as well as the stone itself. Recurrences may be due to failure to remove the original cause or to fragments or small stones left behind, or the cause may have developed subsequently to the removal of the original stone. If recurrences are to be avoided, precautions as follows must be taken:

1. Roentgen-ray and cystoscopic examinations must be made after the stone is removed, to make sure that no fragments of stone remain.
2. Infected kidneys should be cleared up with pelvic lavage and the removal of foci of infection.
3. Renal lithiasis, if present, should be removed.
4. Cystitis should be cleared up by lavage of the bladder and drainage, if necessary.
5. Causes of retention, such as enlarged prostate or stricture, should be removed; or, if the cause cannot be removed, as in cases of atonic bladder, the residual urine should be withdrawn regularly.
6. Diverticula, if they retain urine or cause cystitis, should be removed.
7. Hygienic and dietetic measures that benefit the general health should be adopted.

Twelve (7.84 per cent.) of the recurrences followed litholapaxy; eighteen (4.55 per cent.) followed suprapubic cystostomy; one (7.14 per cent.) followed perineal cystostomy, and one (7.14 per cent.) followed removal of the stone through the cystoscope: a total of thirty-two (5.54 per cent.) in the 577 cases.

The causes of the original bladder stone and subsequent recurrences are shown in Table 14.

An analysis of the causes of recurrence in these thirty-two cases is shown in Table 15. There were not more than two recurrences in any case.

TABLE 12.—ONE HUNDRED AND FIFTY ASSOCIATED OPERATIONS IN 147 CASES (35.85 PER CENT. OF 409 CASES) IN WHICH THE OPERATION PERFORMED WAS SUPRAPUBIC OR PERINEAL CYSTOSTOMY

Associated Operations at the Time the Stone Was Removed	Operations	Per Cent.
Suprapubic prostatectomy	104	25.42
Perineal prostatectomy	14	3.42
Excision of diverticulum	5	1.22
Dilatation of stricture	7	1.17
Cautery excision of carcinoma of the bladder	4	0.97
Resection of carcinoma of the bladder	2	0.48
Removal of specimen from the bladder for diagnosis	2	0.48
Removal of specimen from the prostate for diagnosis	1	0.24
Herniotomy	3	0.73
Closure of perineal fistula	3	0.73
Excision of suprapubic sinus	2	0.48
Excision of lipoma of groin	1	0.24
Closure of vesico-intestinal and abdominal-intestinal fistula	1	0.24
Cholecystostomy	1	0.24

TABLE 13.—MORTALITY *

		Per Cent.
Patients without associated operations	430	74.52
Mortality	26	6.04
Patients with associated operations	147	35.85
Mortaltiy	10	6.8
Patients with associated suprapubic prostatectomy	104	25.36
Mortality	7	6.7

* Five hundred and twenty-seven patients were operated on. Thirty-six, or 6.23 per cent., died (5.79 per cent. of the 621 patients).

TABLE 14.—TOTAL RECURRENCES (THIRTY-TWO CASES)

Source of Original Stone	Cases	Source of First Recurrence	Source of Second Recurrence
Prostate	16	12	0
Kidney	5	3	1
Cord bladder	4	3	1
Stricture	3	3	1
Cystitis	2	6	2
Tumor of bladder	1	1	0
Diverticulum	1	2	1
Not given	0	1	0
Left at former operation	0	1	0

TABLE 15.—CAUSES OF RECURRENCE

	First Recurrence	Second Recurrence
Failure to remove cause of original stone (22)		
Prostate	9	0
Kidney	3	1
Atonic bladder	3	1
Cystitis	3	0
Diverticulum	1	1
Stricture	1	0
Tumor	1	0
Questionable	1	0
Stone or fragments left at previous removal (perineal prostatectomy)	1	0
Cause of recurrence developed subsequently to removal of original stone	9	3
Total	32	6

CONCLUSIONS

1. The incidence in the United States of patients with stone in the bladder is greatly increased after the age of 50, in contrast to some other countries where it is largely a disease of childhood and early adult life.
2. Combined roentgen-ray and cystoscopic diagnosis is accurate in approximately 96.87 per cent. of the cases.
3. The incidence of diverticulum of the bladder is much greater than is usually believed, and stone in the bladder occurs in about 14 per cent. of these cases.
4. The low mortality of litholapaxy and the ease with which it can be performed under caudal anesthesia should tend to increase the instances of stones being removed by this method. The advantages more than compensate for the very slight increase in recurrence.
5. Operations associated with that of removal of stone, in selected cases, do not materially increase the mortality.
6. The majority of recurrences could be avoided if precautions were taken to remove the cause of the original stone.

ABSTRACT OF DISCUSSION

DR. JAMES D. BARNEY, Boston: Bladder stones in women are very rare. In a series of 455 cases of stone there were only thirteen cases in women. The average mortality was 9.5 per cent. The difference between suprapubic mortality and that of litholapaxy is striking; in the former it averaged 26 per cent.; in the latter 7.25 per cent. In sixty-seven cases during the last ten years, the mortality has been only 2 per cent. in litholapaxy. The recurrence is a different matter. The total recurrence is 20.5 per cent.; 42 per cent. after litholapaxy and only 10 per cent. after cystotomy. But the figures have shown the recurrence in the last ten years to be much less after litholapaxy, because the cystoscope has been used after operation and has discovered further stones. We found also that the stay of the patient in the hospital after litholapaxy was an average of eleven days and much longer after cystotomy. On the other hand, there are certain dangers in litholapaxy in the hands of those not well accustomed to the instrument. It is a powerful lever and can tear the urethra badly in introducing it and perhaps in pulling it out. If it is depressed too much it may tear off the urethra from the

suprapubic bone, or it may tear the bladder mucosa badly and produce severe hemorrhage. There are contraindications to its use. There may be many cases in which it is difficult or impossible to use this method. Of course, a stone in a diverticulum of the bladder may produce difficulties. It may be in the bladder today and in the diverticulum tomorrow. Stricture of the urethra may be a contraindication, and one may find a stone in the bladder which is giving no symptoms. Under these circumstances it may be that the crushing of the stone will be far more difficult. The large size of the stone may prevent the use of the instrument, for unless the bladder can be well distended so that there is plenty of space around the stone, the instrument cannot be used. Then, too, there are cases of tumors encrusted with lime salts, and attempts to crush these have met with failure.

HYPERTENSION WITH MINIMAL RENAL LESIONS*

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In two papers,[1] the thesis was submitted that in the largest majority of cases of hypertensive chronic nephritis the hypertension is the primary phenomenon and the nephritis a consequence. In other words, anatomy and function should not be interpreted in this disorder in the relation of cause and effect, as had hitherto been done, but reversely. There is no need to discuss at any length the reasonings that led to this conception. Briefly summarized, they are these:

1. No mechanistic interpretation can explain how hypertension can result from any variety of destructive lesion of the kidney, experimental and otherwise. Indeed, all hitherto submitted theories have proved futile.

2. Every clinical and experimental evidence seems to prove that arterial disease, when associated with hypertension, is the result rather than the cause of hypertension. Such authorities as Allbutt [2] and Faber [3] accept this relationship as wholly demonstrated.

3. There is abundant evidence to show, largely as the result of the work of Jores and his school, that "chronic nephritis" with hypertension is a primary vascular disease, and that, in many instances, lesions of the terminal branches of the arterial system are demonstrable, even before the gross lesions of the kidneys are manifest.

4. The lesions in chronic nephritis can also be interpreted as the results of primary vascular lesions. The only premise, additional to the foregoing, necessary to render this conception valid is the acknowledgement of the possibility of a sclerosis occurring in the capillaries as well as in the terminal arteries. This conception is not new, but it has not been sufficiently emphasized. This is necessary in order to explain the glomerular lesions always present in nephritides associated with hypertension. In a previous paper,[4] anatomic evidence is submitted to show that the lesions in the glomeruli can be interpreted as an arteriosclerosis in miniature. Nephritis, therefore, may be conceived as an arteriosclerosis affecting both capillaries and arteries in a parenchymatous organ. For this reason, the term "arteriocapillary fibrosis," employed by Sutton and Gull in a different connotation, was adopted as best, and as most briefly expressing the lesion of that variety of nephritis usually associated with hypertension.

5. Every evidence seems to show that so-called "albuminuric retinitis" is in a large measure purely the result of vascular lesions, and that such a retinitis, as far as available data seem to indicate, follows a preexisting hypertension. Since albuminuric retinitis and chronic nephritis are morphologically analogous lesions, it seems reasonable to conclude that the nephritis as well as the retinitis is sequential to the hypertension.

It is interesting to observe that since the publication of the last observation, Volhard,[5] in his latest monograph on "Bright's Disease," arrives at the same conclusion, namely, that retinitis is sequential to the hypertension and not to the nephritis.

VALUE OF HYPOTHESIS

The foregoing hypothesis, if accepted, will obviously modify many of our current concepts concerning the genesis and the nosology of arteriosclerosis and chronic nephritis. Whatever defects this hypothesis may have, this much can be said for it: it helps, more than any other hypothesis that has been submitted, to explain many of the obscure relationships between hypertension on the one hand and anatomic vascular and renal disease on the other. Especially will it help to explain one of the most puzzling problems in connection with the renal or arterial origin of hypertension, namely, why it is that the degree of hypertension is often out of all proportion to the extent of the destructive lesion in the arteries or the kidney. It will also assist us in explaining some of the baffling relationships between atherosclerosis and chronic nephritis, since it places both these lesions on the same footing.[6]

This hypothesis to be valid also subsumes the proposition that the conventional varieties of arteriocapillary fibrosis are not end-products as had hitherto been regarded, but stages, according to all accepted criteria of morphology, of a well-defined pathogenesis. The argument, the result of general impressions based on extensive experiences in morbid anatomy, that led us to this apparently iconoclastic but by no means novel conclusion has already been submitted.[7] Studies are now in progress in which an attempt will be made to demonstrated both by gross and by microscopic evidences this morphologic identity. It will be necessary to trace genetically the lesion of the earliest glomerulonephritis through the entire series down to the terminal phase connoted by the term "contracted kidney."

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* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

1. Moschcowitz, Eli: Am. J. M. Sc. **158**: 668 (Nov.) 1919; Clinical and Anatomic Relations in Chronic Nephritis, Arch. Int. Med. **26**: 259 (Sept.) 1920.

2. Allbutt: Diseases of the Arteries, Including Angina Pectoris, London, 1915.

3. Faber: Die Arteriosklerose, Jena, 1920.

4. Moschowitz, Eli (Footnote 1, second references).

5. Volhard: Die Doppelseitigen hämatogenen Nierenerkrankungen, Berlin, 1918.

6. It is satisfactory to note that, in some recent publications by students of this problem, O'Hare (Am. J. M. Sc. **160**: 366 [Sept.] 1920), Barker (Ohio State M. J. **16**: 709 [Oct.] 1920), Blumgarten (Med. Rec. **98**: 856 [Nov. 20] 1920), Munk (Pathologie der Nephrosen, Nephritiden und Schrumpfniers, Berlin, 1919), and Löhlein (Med. Klin. **14**: 136, 1918), similar lines of reasoning are set forth.

7. This conception was introduced by Weigert (Volkmann's Sammlung, Klin. Vortr., Nos. 162 and 163, 1879) many years ago. He erred only in that his conception was applied too broadly to many varieties of chronic nephritis. More recently Saundby (quoted by Allbutt) introduced it again. Compare also Footnote 1.

Furthermore, if this hypothesis be correct we should expect, on *a priori* grounds, to find hypertension associated with every stage of arteriocapillary fibrosis, from the earliest, in which the kidney approaches the normal, to the terminal, in which the organ is profoundly disorganized. Employing conventional terms we should find such kidneys in the stages of "glomerulonephritis," the "large granular" kidney, the "small granular" or "red" kidney and the "contracted" kidney. As has been insisted on before, it is not so much the renal insufficiency (uremia) that causes death, but decompensation of the cardiovascular system (apoplexy, cardiac insufficiency, coronary disease) consequent to the continuous hypertension that is responsible for the majority of fatalities. Obviously, the most common lesions to be found at necropsy associated with hypertension will be the terminal phases of the lesion. As patients in the earlier phases of their hypertensive process, that is, patients who are supposed to have "essential" hypertension, do not often die, the earlier lesions are infrequent. The very beginnings of an arteriocapillary fibrosis, in which the lesions in the glomerular tufts are early and not widespread, are rarest of all. My interest in this problem has stimulated a hunt for such lesions, and I have succeeded in obtaining five, a description of which furnishes the theme of this paper. Theoretically, it ought to be possible to obtain absolutely normal kidneys in patients who have hypertension of a very short duration; but, as such patients never die, except when cut down by some intercurrent disease, the probability of finding such kidneys is exceedingly remote.

In medical writings I have found abundant reports of "normal" kidneys associated with hypertension. But many of these reports are open to criticism, on the following grounds: 1. The term "normal" is applied to macroscopic appearance only. 2. The morphology is not described in sufficient detail. 3. The microscopic description shows that lesions are present, however slight. Indeed, it is a grave question whether any of these kidneys described as "normal" would pass muster under the hazard of a strict critique. It is for this reason that the term "minimal" is applied to the lesions about to be described. The term "minimal" permits of a wide latitude in interpretation. By this term I mean to convey that the kidneys grossly were normal, and that the lesions present are not sufficient to account for a hypertension, even by those that regard hypertension as the result of renal disease.

CASE 1.—*Summary.*—A patient, who was syphilitic, gave a short history of hypertensive disease with symptoms suggestive of coronary sclerosis. The blood pressure was 220 systolic, 90 diastolic. The urine was full of albumin and casts. Death resulted from cardiac failure. At necropsy a profound syphilitic disease of the aorta was found. The kidneys, with the exception of a lesion in a small number of glomeruli and chronic congestion, were normal.

CASE 2.—*Summary.*—A woman, aged 50, who had suffered from a hemiplegia seven years ago, entered the hospital with all evidences of mitral stenosis, auricular fibrillation and a grave myocardial insufficiency. The blood pressure varied between 214 and 190 systolic, and 86 and 75 diastolic. Tests showed only slight evidences of renal insufficiency. At necropsy, evidences of an old embolic lesion were shown in the forms of numerous healed scars in one kidney. The embolic probably arose from an old endocarditis of the mitral valve, which resulted in stenosis. In addition, the aortic valves showed an intense atherosclerosis, the aorta a slight one. Aside from the focal scarring of the kidneys, the organs showed nothing grossly and microscopically but a chronic congestion consequent to the myocardial insufficiency.

CASE 3.—*Summary.*—A man, aged 56, obese and plethoric, entered the hospital with symptoms of grave myocardiac insufficiency; blood pressure, 190 systolic, 110 diastolic. He died with symptoms suggesting a cerebral hemorrhage. At necropsy a generalized atherosclerosis was found with a fibrous myocarditis due apparently to disease of the coronary arteries. The kidney revealed very slight lesions, exceptionally infrequent diseased glomeruli and moderate atherosclerosis of the terminal vessels.

CASE 4.—*Summary.*—A woman, aged 41, who felt perfectly well, until a sudden right hemiplegia set in, had a fairly high tension (180 systolic, 125 diastolic) and evidences of a clinical nephritis. At necropsy a fairly marked atherosclerosis of the vessels was manifest. The kidneys ,with the exception of an atherosclerosis of the terminal vessels and chronic congestion, were normal.

CASE 5.—*Summary.*—A man, aged 48, without premonitory symptoms, suddenly developed apoplexy. The blood pressure was 270 systolic, 120 diastolic. Clinically, there was a nephritis. Necropsy revealed a scattered atherosclerosis. The kidneys showed little change aside from an intense atherosclerosis of the terminal vessels.

COMMENT

These five cases demonstrate that even excessive hypertension may be associated with minimal lesions within the kidney. The chronic congestion present in each is a consequence of circulatory insufficiency and has no other bearing on the hypertension. Case 2 is open to criticism because the lesion may not in the strictest sense be deemed minimal, owing to the widespread scarring in the cortex of one kidney and the hypoplasia of the other. I do not believe, however, that such criticism is justified. In the first place, these scars are manifestly the result of an old embolic process following an old endocarditis, and occurred synchronously with the hemiplegia. They cannot conceivably be regarded in any way as the result of a nephritic process, because the intervening areas of kidney are practically normal. Mere scarring of the kidney, leading to diminution of the volume content of the organ, cannot be regarded as a possible cause of hypertension, as Pearce [8] has shown. Finally, the hypoplasia of one kidney may be ignored as a possible factor in causing hypertension since such a relationship, as far as I am aware, has not been reported. Those who believe in a pathologic substratum as the cause of the hypertension in these cases may submit the argument that the greater or lesser degrees of arteriosclerosis present in all six cases was the "cause" of the hypertension. I believe that in the light of modern investigation (Allbutt,[2] Faber,[3] Munk,[6] Fraboese [9] and Löhlein,[6]) such a view is no longer justifiable. The reasons for this contention have already been submitted in the paper previously referred to.[10] Allbutt, especially, adduces abundant evidence to show that arteriosclerosis is the result and not the cause of a continuous hypertension.

REVIEW OF THE LITERATURE

Case reports of hypertension, with normal or minimal lesions within the kidney, are not infrequent. Many of such reports are submitted without comment or without any regard to their bearing on the prob-

8. Pearce, R. M.: The Problems of Experimental Nephritis, Arch. Int. Med. **5**: 133 (Feb.) 1910.
9. Fraboese: Zentralbl. f. allg. Path. u. path. Anat. **31**: 225, 1921.
10. Moschcowitz, Eli (Footnote 1, first reference).

lem of hypertension (Romberg;[11] Fisher,[12] four cases; Gaillard,[13] four cases; Widal and Boidin;[14] Vaquez;[15] Mosenthal,[16] and Hirschfelder.[17]) Only a few studies are available which afford any conception of the relative frequency of such lesions associated with hypertension. Lee[18] found some kidney lesion in over 71 per cent. of cases of hypertension. In fifteen out of fifty-three cases, no kidney lesion was found. Seven of these showed cerebral lesions, seven cardiac lesions and one general arteriosclerosis. All patients with a constant blood pressure over 200 systolic showed some renal lesion. There were seven cases without renal lesions and without arteriosclerosis. In none was the pressure over 200. Four showed brain lesions: (1) brain tumor; (2) tuberculous meningitis; (3) degeneration in the pons, and (4) traumatic cerebral hemorrhages. The remaining three were cardiac cases. Ophuls'[19] material is large enough to permit a better evaluation. In a series of 1,000 necropsies he attempts by pure anatomic data to explain the relation of nephritis to arteriosclerosis and the relation of cardiac hypertrophy to hypertension. He presents a tabulated report of forty-six cases of general arteriosclerosis and cardiac hypertrophy, in which slight lesions in the kidneys were present. In three instances there were no renal lesions whatever; but there was cardiac hypertrophy and moderate arteriosclerosis. Schlayer[20] found renal lesions in all of forty-six cases of hypertension. In 24 per cent. the anatomic changes occurred only in isolated areas.[21] He regards these cases as arguments against the Cohnheim-Traube mechanical theory of hypertension.

Fig. 1.—Section of kidney from Case 1, showing practically normal picture.

These reports indicate that the association of minimal renal lesions with hypertension is commoner than is supposed.

What is the significance of such lesions? What relation have they to the problem of hypertension? All these patients presented during life profound symptoms of renal disease, according to clinical criteria, and yet at necropsy the kidneys were not as altered as conventional teaching would lead us to expect. It would be futile to regard such associations as mere chance findings. Such an interpretation may be satisfying but inconsequential. In the study of disease, it is the exceptions and not the rules that are often of most significance.

These cases demonstrate, if they demonstrate nothing else, that sometimes at least a hypertension need not be of renal origin, even though clinically evidences of nephritis cannot be directly correlated in terms of morphologic evidence of renal disease, and vice versa. Even if a renal origin of hypertension is granted, these cases certainly prove, what has been demonstrated repeatedly in the necropsy room, that the degree of hypertension bears no relationship to the degree of anatomic destruction within the kidney. This is a rather important conclusion because, other things being equal, we should expect, if a primary renal origin of hypertension is tenable, that the degree of hypertension should be proportionable to the renal damage. In these cases, therefore, we must seek the cause of the hypertension in another origin.

Many of these patients showed atherosclerosis as evidenced by changes in the aorta. Even assuming that lesions in the aorta are indicative of a generalized arterial disease, which, as Jores[22] has shown, is by no means true, every available evidence we possess shows that arterial disease should no longer be regarded as the cause of hypertension but rather that the reverse is true. The arguments in favor of this view have already been submitted Allbutt,[2] and Volhard[5] in his latest monograph, settle this point, it seems to me, for all time. If the genetic relationship of hypertension to arterial disease is admitted, a fact based on demonstrable proof, it seems logical to surmise that perhaps the two lesions which are so frequently associated in the human frame, arteriosclerosis and arteriocapillary fibrosis, have the same etiology; and then if hypertension has actually been demonstrated as preceding the arterial disease, perhaps it

11. Romberg: Quoted by Allbutt.
12. Fisher: Deutsch. Arch. f. klin. Med. **109**: 469, 1912-1913.
13. Gaillard: Tribune méd., Paris, 1907, p. 789.
14. Widal and Boidin: Bull. et mém. Soc. méd. d. hôp. de Paris, July 21, 1905.
15. Vaquez: Arch. d. mal. du cœur **6**: 225 (April) 1913.
16. Mosenthal: Med. Clinics N. America **1**: 119 (July) 1917.
17. Hirschfelder: Diseases of the Heart and Aorta, Ed. 3, Philadelphia, J. B. Lippincott Company, 1918.
18. Lee, R. I.: Pathologic Findings in Hypertension, J. A. M. A. **57**: 1179 (Oct. 7) 1911.
19. Ophuls, William: Subacute and Chronic Nephritis as Found in One Thousand Unselected Necropsies, Arch. Int. Med. **9**: 156 (Feb.) 1912.
20. Schlayer: München med. Wchnschr. **60**: 63, 1913.
21. "Die vorhandenen anatomischer Veränderungen sind nur fleckweise."
22. Jores: Deutsch. Arch. f. klin. Med. **94**: 1, 1908.

may as well be the indirect cause of the nephritis. In other words, instead of seeking for an anatomic cause to explain a physiologic phenomenon, we must realize that dysfunction precedes anatomy.

As I tried to elucidate in a previous paper, the lesions of arteriocapillary fibrosis and of atherosclerasis and of albuminuric retinitis have so many points of analogy that for all practical purposes these may be regarded as one and the same lesion. The lesion in the kidney and in the retina is essentially the same as that in the arteries and the changes in the parenchymatous or, rather, extravascular, portions of these organs are in greatest part dependent on and explainable by the vascular changes. By vascular changes I refer to changes not only in the larger vessels but also in the glomerular capillaries. In order, therefore, to render the foregoing conception of "nephritis" complete, it is necessary to recognize an old but unappreciated bit of medical lore, namely, that sclerosis is not a disease limited in its activities to the arteries alone but to the capillaries and veins as well. The familiar glomerular lesions in nephritis may therefore be justly interpreted as representing atherosclerosis in miniature; indeed, the morphologic resemblance, as has already been pointed out, is striking. Whether the initial change begins in the capillaries of the glomerulus or, as some hold, in the terminal arterioles, will not be argued for the present. The fact that sclerosis of the capillaries of the glomerulus invariably occurs in arteriocapillary fibrosis is sufficient for our present purposes.

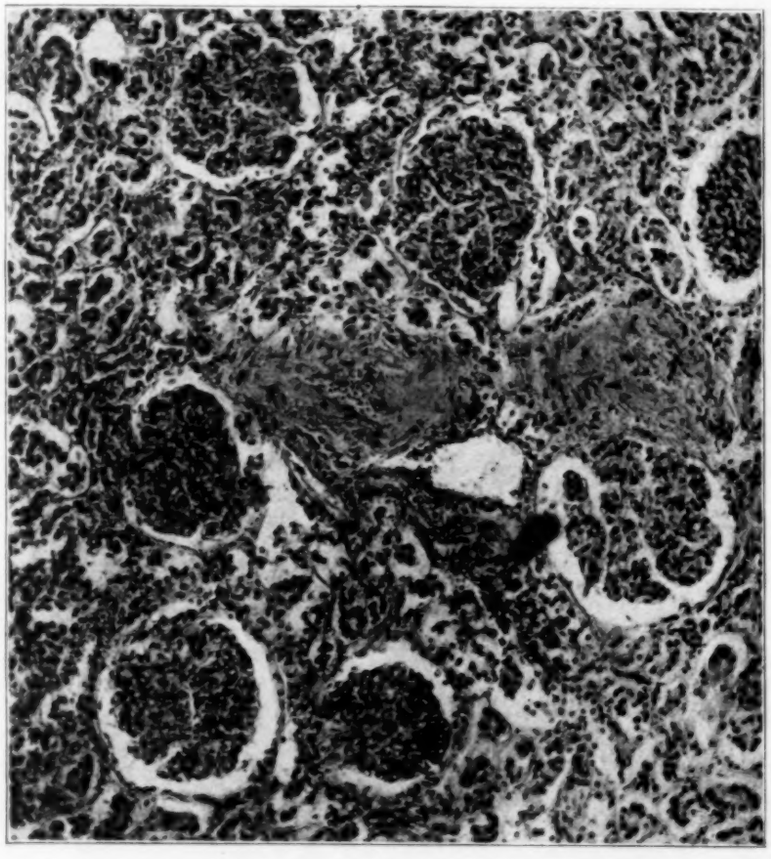

Fig. 2.—Section of kidney from Case 2, showing fairly normal picture with the exception of thickening of terminal blood vessels.

The following argument comes to mind: If hypertension is primary and sclerosis of the capillaries of the glomeruli is secondary, why is it that the capillaries in other organs do not partake in this process? The answer is that there is evidence that they do. It is significant that in the one organ most resembling glomeruli in conformation within the human frame, the islands of Langerhans, sclerotic changes associated with hypertensive disease are by no means uncommon, which probably accounts for the frequency of associated "nephritis" and diabetes.[23] A recent author[24] has commented on the striking morphologic identity between glomerulitis of the kidney and "glomerulitis" of the islands of Langerhans.

Recent work on the pathologic physiology of the capillaries, it seems to me, furnishes abundant substantiation of this thesis. I deem this work of such importance and pregnant with so many possibilities in the study of disease that I shall summarize these studies in some detail. In 1916, Weiss[25] described a method of viewing the living capillaries in the skin. It is identical with that described by an American, Lombard,[26] four years previously. The method consists, briefly, in placing a drop of glycerin or some other clearing agent on the skin of the finger just behind the cuticle of the nail. This area is selected because the skin at this site is thin. A strong light is then thrown on the finger and the skin is viewed under a low magnification. A remarkable picture presents itself. The loops of capillaries and the blood flow are plainly visible. Normally the loops appear as in Fig. 3.

The pathologic states which Weiss studied were confined to nephritis with hypertension, arteriosclerosis, diabetes and valvular disease. Each of these afforded a picture which was peculiarly its own. For our purposes, I shall describe only those of nephritis with hypertension and arteriosclerosis. In nephritis, Weiss says, the capillaries are narrow, long and tortuous (Fig. 3). The caliber is not uniform but irregular. Furthermore, anastomoses with other capillaries are present, a circumstance never present in other conditions. The flow of the blood is slow, In many capillaries there is actual stasis, the erythrocytes being clumped together. The flow, and this is specially characteristic, is granular (Körnig). He believes these changes are undoubtedly the result of local organic changes in the capillaries. He says, "After all we must consider the possibility that these changes in contracted kidneys, which appear to be the result of endarteritic and capillary processes, may enable us to view the origin of contracted kidney in an entirely new light." In atherosclerosis Weiss found practically identical changes.

23. The marked parallelism, etiologic, anatomic, clinical and therapeutic, between diabetes and hypertensive disease has already been touched on in previous papers. This topic opens many possibilities, and is reserved for future discussion.

24. Barron: Surg., Gynec. & Obst. **31**: 437 (Nov.) 1920.
25. Weiss, E.: Deutsch. Arch. f. klin. Med. **119**: 1, 1916.
26. Lombard: Am. J. Physiol. **29**: 339, 1912.

Weiss' publication stimulated further researches, so that today the literature of capillaroscopy is considerable. Weiss' observations have been confirmed, especially by Jurgenson,[27] Draga,[28] Neumann[29] and M. Weiss.[30]

It is difficult to resist the temptation to overestimate the importance of these observations in substantiating the thesis concerning the pathogenesis of arteriocapillary fibrosis and arteriosclerosis that I have submitted. It furnishes the most important missing link in the chain of evidence that I have adduced and helps much to give unity to the thesis. It certainly offers strong support to the argument that "nephritis" and atherosclerosis are essentially vascular phenomena and that of these vascular phenomena changes in the capillaries are of the first importance.

There is room for interesting speculation on the relation of these organic changes in the capillaries to recent studies on the physiology of the capillaries, especially by Krogh[31] and Hooker;[32] but such speculation would lead us somewhat astray from the topic under discussion. At all events, available data seem to show that these studies on capillary pathology have opened a new realm in the study of disease.

The argument has also been adduced, especially by Volhard, that the glomerular lesions are probably not the result of hypertension because, if this were so, all the glomeruli would be equally affected. Incidentally, it seems at the same time an equally cogent argument against any toxic origin. The argument cannot be satisfactorily answered in the light of our present knowledge, but some recent research on capillary functions is extremely suggestive. Krogh[31] has shown that the capillary supply of an organ varies with its state of activity, and in a recent Harvey Lecture, Richards, in a brilliant series of investigations, showed that the capillaries within the glomeruli of a frog's kidney vary enormously in distensibility and activity and in the rate of flow of the contained corpuscles at different periods. It certainly seems reasonable to infer that these variations in functional activity may have some bearing on the onset of capillary lesions.

There is, furthermore, clinical evidence which indicates that simple hypertension precedes "nephritis." Most clinicians, I am sure, are familiar with the not uncommon observation that essential hypertension or hyperpiesis of Allbutt precedes the onset of nephritis, sometimes even by many years. So common is this that Ringer[33] regards every patient with essential hypertension as a potential nephritic. While necropsies in cases of essential hypertension are rare, the few that have been performed show that the kidneys are normal or nearly so (Mosenthal,[34] Janeway[35] and John[36]).

This interesting phase of the subject is reserved for more complete discussion at a later date.

The hypothesis that hypertension or the cause or causes of hypertension produce nephritis has been repeatedly broached by numerous writers. Senator,[37] as far back as 1902, thought that hyperpiesis, if neglected, goes on to granular kidney. Jores,[22] in 1908, commenting on observed cases in which there was slight peripheral arteriosclerosis and slight lesions with, nevertheless, marked left ventricular hypertrophy, suggested that these evidences may be the result of arterial hypertension of unknown origin. Löhlein,[38] in reporting on three cases of apoplexy consequent on high blood pressure, in which at necropsy only slight lesions of the glomeruli were present, although changes in the smallest arteries were marked, submits his belief that the tension is primary and the sclerosis and nephritis are secondary. Frank[39] believes in a primary hypertonic diathesis which causes hypertrophy of the heart and arteriosclerosis. This is identical with the presclerosis of Huchard. Frank's view was the result of an observation in which normal kidneys were found associated with a tension of 320. There was intimal thickening of the smallest blood vessels. Ophuls[19] submits one of the most important contributions to the subject. He attempts to explain by anatomic data the relationship between arteriosclerosis, nephritis, hypertrophy of the left ventricle and hypertension. He shows the futility of explaining hypertension on the basis of anatomic data alone. He comes to some highly interesting and, for our purpose, suggestive conclusions: 1. There may be marked general arteriosclerosis affecting the peripheral vessels without continued hypertension. 2. The same is more rarely true when the arteriosclerosis is associated with extensive destruction of the kidneys. 3. At times we have long continued hypertension and cardiac hypertrophy followed by cardiac insufficiency of unknown origin with little arteriosclerosis and slight renal lesions. 4. This demonstrates that the interrelation between general arteriosclerosis, and arteriosclerotic renal disease, on the one hand, and hypertension with

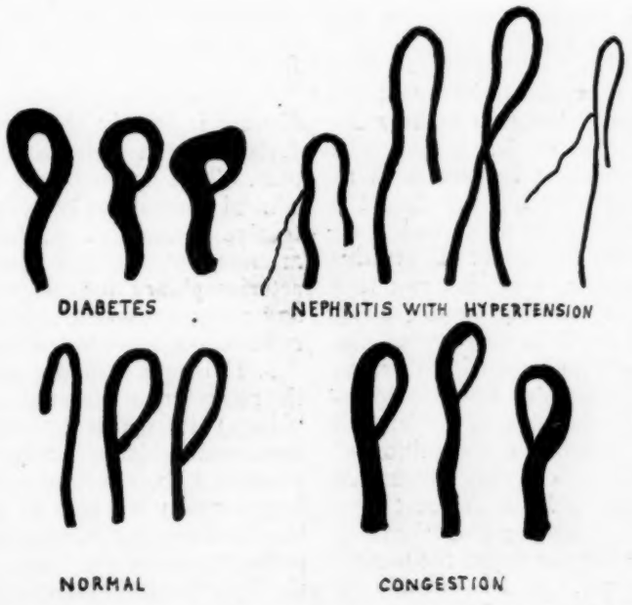

Fig. 3.—Appearance of capillary loops and blood flow under varying conditions.

27. Jurgenson: Ztschr. f. klin. Med. **96**, Nos. 5 and 6, 1918.
28. Draga: Wien. klin. Wchnschr., 1917, No. 22.
29. Neumann: Berl. klin. Wchnschr. **57**: 826, 1920.
30. Weiss, M.: Presse méd. **29**: 1905, 1921.
31. Krogh: Am. J. Physiol. **52**: 457, 1919.
32. Hooker: Physiol. Rev. **1**: 112, 1921.
33. Ringer: Am. J. M. Sc. **161**: 781 (June) 1921.
34. Mosenthal: Personal communication to the author.
35. Janeway: Am. J. M. Sc., May, 1906.
36. John: Med. Klin. **9**: 942, 1913.
37. Senator: Erkrankungen der Nieren, Berlin, 1902.
38. Löhlein: Ergebn. d. inn. Med. u. Kinderh. **5**: 411.
39. Frank: Berl. klin. Wchnschr. **48**: 609, 1911.

resulting cardiac hypertrophy must be a rather loose one. He concludes, "It is safe to say that the rôle of the kidney lesions in the production of hypertension has been evidently considerably exaggerated."

Ophuls' article furnishes a striking example of the quandary in which many observers find themselves when they attempt to explain clinical phenomena and especially the symptom hypertension on an anatomic etiology. Such a quandary will inevitably result when the problem of the relation of hypertension to arteriosclerosis and nephritis is divorced from a clinical aspect. It is interesting to note that in a recent publication Ophuls [19] arrives at the conclusion that we have already submitted, namely, that arteriosclerosis and nephritis do not bear mutual reactions on each other, as is currently believed, but are simultaneous manifestations of a common etiology. Whether this etiology is a sepsis, as Ophuls believes, or hypertension and its unknown causes, as we believe, is not a matter for present argument. At all events, the concept of a common genesis for both these disorders certainly helps to clarify much of the current medical thinking on these topics.

It does not explain everything, however. It does not explain why in certain exceptional instances the extent and degree of the arterial lesion is entirely out of proportion to that of the renal lesion and vice versa. Here we must assume that factors, such as tissue resistance, tissue activity, etc., enter into the etiology which at present we do not understand.

An obvious thought now intrudes itself: If arteriosclerosis and chronic nephritis are reactions resulting from hypertension or its causes, how are we to explain the absence of hypertension in these not uncommon instances of advanced vascular and nephritic diseases which Allbutt has designated as "decrescent arteriosclerosis and decrescent nephritis," lesions which are limited to the aged? At first blush, the recognition of such cases seems to furnish a crushing argument against the thesis I have submitted. It seems to me that the answer lies in the recognition of the fact that normal tension and hypertension represent merely degrees of one functional process. As I have adduced in previous papers, every evidence seems to show, if we look facts squarely in the face, that the end-results of a glomerular nephritis with a secondary contracted kidney, and a decrescent nephritis (arteriosclerotic kidney, benign contracted kidney, primary contracted kidney) are morphologically practically identical (MacCallum,[40] Ophuls,[19] Löhlein [38] and Rosenthal [41]). From this we may conclude that the causes must be alike; in the first, this is a tension which from cause or causes unknown exceeds the normal. As a consequence, the span between the initial damage and the terminal phases covers only a comparatively brief duration of years. In the second, a normal tension precedes unremittingly to the formation of vascular lesions; but the changes are slow, the "wear and tear" proceeds in almost insensible gradations, so that organism is never profoundly affected, and the patient usually dies of some other lesions. The issue is therefore essentially one of relativity.

The cases I have presented, therefore, furnish an additional and cogent argument against the conventional hypothesis that hypertension is the result of renal disease. Furthermore, such cases are not inconsistent with the thesis that the renal lesions are consequent to a persistent hypertension or to the cause or causes of such a hypertension.

40. MacCallum: Textbook of Pathology, Philadelphia, 1917.
41. Rosenthal: Deutsch. Arch. f. klin. Med. **133**:153, 1920.

SUMMARY

1. Five cases are reported in which hypertension and other clinical evidences of nephritis were present, although the kidneys showed but slight lesions, certainly less than conventional teaching has led us to expect.

2. These cases, which my experience and the study of reported observations lead us to believe are not at all uncommon, show that clinical and postmortem nephritis are by no means synonymous; and that, above all, as has been insisted previously, the presence and the degree of hypertension bears no relation to the extent of the lesion.

3. These observations lend no support to the belief that the hypertension of chronic nephritis is of renal origin, but are not inconsistent with the previously submitted thesis that hypertension is one of the factors in producing nephritis, better termed arteriocapillary fibrosis.

4. Evidence is adduced to show that arteriocapillary fibrosis is merely the localized and prominent manifestation of a generalized capillary and vascular disease. This accounts for the frequency of associated clinical phenomena referable to other organs in hypertensive disease, e. g., brain, aorta, heart, pancreas, arteries, etc. In this conception, arterial disease and arteriocapillary fibrosis are not maladies which bear any mutual reaction to each other, but are contemporaneous reactions to the same insult.

5. Evidence is again submitted that the lesions of the secondary contracted kidney (malignant contracted kidney) in which hypertension is present and the decrescent kidney (benign contracted kidney, arteriosclerotic kidney, primary contracted kidney) in which hypertension is slight or absent, are morphologically, to all intents and purposes, identical. To explain the pathogenesis of the latter form of contracted kidney, the hypothesis is submitted that whereas in the secondary contracted kidney the most important, if not the main factor in its production, is vascular hypertension, in the primary or benign contracted kidney it is vascular tension. Hypertension in this conception is merely an exaggerated phase of a normal functional process. The functional changes in the organism are consequent on compensatory mechanisms.

41 West Eighty-Third Street.

ABSTRACT OF DISCUSSION

DR. O. H. PERRY PEPPER, Philadelphia: Dr. Moschcowitz referred to Weiss with too much emphasis. If I remember Weiss' original paper correctly he himself attributed the method to Lombard. The German literature contains references to it as Weiss' method, which is not justified because of priority of description by Lombard.

DR. EDWIN R. LE COUNT, Chicago: Many years ago Councilman discussed idiopathic hypertrophy of the heart at some length. It is not uncommon for those who have considerable experience in postmortem examinations to find deaths from cerebral hemorrhage, with a big heart, practically normal blood vessels and normal kidneys, or with changes in the kidneys solely those of and due to passive hyperemia. As I recall it, Councilman also discussed changes in the minute capillaries as a basis for hypertrophy of the heart. I

have noted that syphilis is not uncommon with hypertrophy of the heart and death from decompensation, without much renal disease.

DR. ELI MOSCHOWITZ, New York: Dr. Pepper is correct. The fact that Lombard discovered capillaroscopy is mentioned in my paper. The point I wished especially to convey is this: that in studying the problem of hypertension and nephritis, we must not be guided too largely by tradition. We have been playing the game of "follow master" altogether too much. Before any progress can be made in the study of these problems, a revamping of current ideas is necessary. Furthermore, little headway will be made by studying such problems from the aspect of pathologic anatomy alone. The pathologist must be a clinician at the same time, and vice versa, so that he may be enabled constantly to check up clinical by pathologic data, and conversely.

DIAGNOSIS AND TREATMENT IN PATHOLOGIC CONDITIONS OF URINARY TRACT IN CHILDREN

MODERN METHODS *

WILLIAM E. STEVENS, M.D.
SAN FRANCISCO

The object of this paper is to emphasize the value of modern urologic methods in the diagnosis and treatment of pathologic conditions of the urinary tract in children, and to present a few selected cases illustrating the necessity for their employment.

While it is true that diseases of the urinary tract are less frequent in children than in the adult, they occur more often than is generally recognized, and deserve much greater consideration than is usually accorded them.

Cystoscopy, ureteral catheterization, functional kidney tests, roentgenography and pyelography are well recognized procedures in adults, but these valuable additions to the armamentarium of the genito-urinary surgeon are frequently neglected in the young. As a result of this omission, a correct diagnosis is at times impossible, and many pathologic conditions are not detected until the involved organ or organs are permanently damaged and recovery impossible.

Edwin Beer, in 1911, called attention to the feasibility of cystoscopy and ureteral catheterization in very young children. He uses specially constructed short examining cystoscopes of 10.5 F. and 12.5 F. caliber for bladder examinations and one of 15 F. caliber for ureteral catheterizations. The objectionable flexibility of the ordinary type of cystoscope under 18 F. in size is overcome by decreasing the length of the instrument. Beer's cystoscopes are 9.5 and 12 cm., respectively, in length. Hyman records cystoscopy in the case of a boy of 17 months and ureteral catheterization in a boy of 3 years and a girl of 22 months. I have succeeded in making cystoscopic examinations and catheterizing both ureters a number of times in a female infant of 12 months by means of a Wolff single catheterizing cystoscope of 16 F. caliber. Later it was possible to introduce a single catheterizing Brown-Buerger cystoscope of 18 F. caliber in this case. The latter is a much more desirable instrument. No case in which external urethrotomy was required in order to facilitate the introduction of a cystoscope has come under my observation. Meatotomy in both sexes, and internal urethrotomy in male patients have occasionally been required.

Kretschmer and Helmholz have catheterized the ureters in a female infant of 7 months with a catheterizing cystoscope of 18 F. caliber. They state that the urethra was abnormally large in this case. In normal cases I have found it impossible to introduce an instrument of 16 F. caliber in infants of this age. This may be accomplished, however, following gradual dilatation of the urethra.

TUBERCULOSIS OF THE KIDNEY

Tuberculosis of the kidney has been considered unusual in children, but careful examination will not infrequently reveal this condition. The importance of early recognition, when the infection is confined to one kidney and surgically curable, is obvious.

CASE 1.—A schoolgirl, aged 9, complained of frequent urination and slight pain in the left hip. Her family history was negative. With the exception of the year previous to nine months ago she had always suffered from frequency aggravated by exercise or excitement. The pain in the hip followed an injury five months before, and she had been under treatment for tuberculosis of that joint for the last month. Examination of the heart, lungs and abdomen was negative. Catheterized specimens of bladder urine contained a moderate number of pus and blood cells, and tubercle bacilli were demonstrated by microscopic examination and guinea-pig inoculation. Culture of the urine revealed a scant growth of *bacillus mucosus-capsulatus* and a few colonies of pneumococci. Cystoscopy revealed a small ulcer partially surrounding a golf hole right ureteral orifice. It was impossible to introduce a catheter over 0.5 cm. into this ureter on account of a stricture. The left ureter was catheterized to the pelvis. The urine from the left kidney contained a few pus cells and gram-positive diplococci, but no tubercle bacilli could be found on microscopic examination or animal inoculation. As the phlorizin and urea functional kidney tests showed normal values on the left side, an enlarged, irregularly shaped right kidney was removed, under gas-oxygen anesthesia. The wound had healed by the ninth day, and the patient was permitted to leave the hospital on the twelfth day following operation. The kidney was almost completely destroyed by a caseating cavernous type of infection which was evidently of long duration. This type of infection is uncommon under 15 and very rare under 12 years of age.

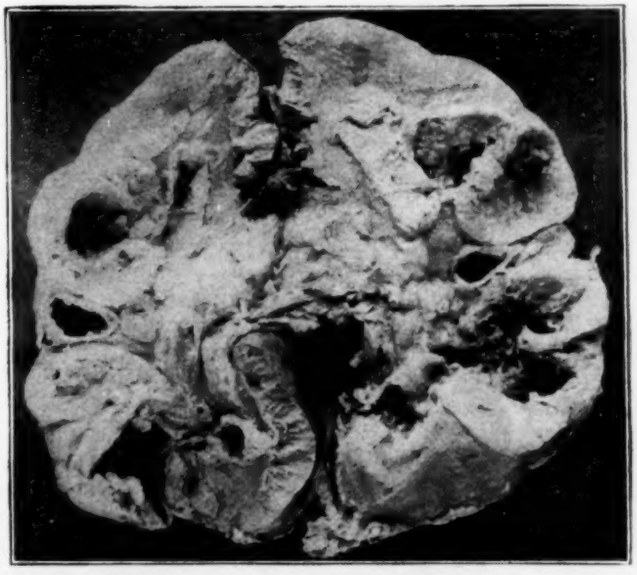

Fig. 1.—Caseating, cavernous type of renal tuberculosis in a girl, aged 12 years.

* From the Genito-Urinary Department of Mount Zion Hospital.
* Read before the Section on Urology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

Case 2.—A boy, aged 13, entered the hospital for the removal of adenoids. He had suffered from frequency of urination, occasional night sweats, weakness and loss of weight for the last year. His mother probably died of pulmonary tuberculosis. When 2½ years of age, a gland was removed from his neck. The tonsils were removed one year ago. A number of pus cells were found on routine examination of the urine, and similar results were obtained from catheterized bladder specimens and, in addition, a number of tubercle bacilli were demonstrated. As the meatus was too small to permit the passage of even a small catheterizing cystoscope, it was incised under local anesthesia. Cystoscopy a few days later disclosed a normal bladder wall. Both ureters were catheterized to the pelves, and a number of tubercle bacilli were found in the urine from the right kidney. That from the left was negative. Indigocarmin injected intramuscularly appeared on the left side in eight and a half

Fig. 2.—Hydro-ureter in a girl, aged 8 years; catheter forming a loop in the lower third of the enormously dilated ureter.

minutes and on the right in twenty-six minutes. The right kidney was removed and four large tuberculous cavities found. The patient was out of bed the seventh day, the wound had healed on the fourteenth day, and he was discharged from the hospital on the twentieth day following operation. He gained 7 pounds in weight during the next two and a half weeks.

These cases emphasize the importance of the early examination of the urine for tubercle bacilli in every child with urinary disturbances. They are of interest because of the advanced caseating cavernous type of tuberculous infection occurring at such an early age.

HYDRONEPHROSIS AND HYDRO-URETER

In my opinion, hydronephrosis, often associated with hydro-ureter, is a relatively common condition in children. It is probably caused by obstruction in the urinary tract below the level of the kidney. The hydronephrosis was unilateral in Cases 3 and 5 and bilateral in Case 4. In addition to the hydronephrosis, hydroureters and urethral strictures were present in Cases 3 and 4.

Case 3.—A girl, aged 8 years, entered the hospital complaining of pain in the right lumbar region, frequent urination and headache. Her family history was not significant. She had suffered from abscesses in the neck and arm, fever and diarrhea, when 9 months old. Her urinary symptoms began when she was 3½ years of age, at which time she suffered from diphtheria accompanied by frequent urination. Pus was found in the urine at that time. Two months later she complained of pain in the hypogastric region, fever and headache. She began to lose weight, vomited frequently, and had attacks of dizziness and epistaxis. She was treated for cystitis two years ago, but without improvement. Her headaches increased in severity, and her appetite began to fail. Examination at this time revealed a stricture at the external urethral meatus. A catheterized specimen of bladder urine contained a large number of pus cells. Colon bacilli were found on culture. Cystoscopy disclosed an inflamed bladder mucosa. The ureters were catheterized to the pelves, and urine was obtained for examination. That from the right kidney contained many pus cells and 30 mg. of urea in 100 c.c. The urine from the left kidney contained a few pus cells and 43 mg. of urea in 100 c.c. Pyelography revealed a marked dilatation of the right renal pelvis, and major and minor calices. Ureterography disclosed an oblong dilatation just above the bladder in which the roentgenographic catheter had formed a loop before proceeding upward in this enormously dilated ureter. The left pelvis and ureter were normal. Following this examination, the pain in the right side became more severe, and she also complained of marked tenderness in the right iliac region. The temperature rose to 39.9 C. (103.8 F.) and the pulse to 150. The blood count disclosed a leukocytosis of 16,000, of which 90 per cent. were polymorphonuclears. As the patient was too weak to permit of nephrectomy at this time, the kidney was opened and drained. Following this operation her condition somewhat improved, but the pain in the right lumbar region persisted, and the urine still contained a large number of pus cells. Two months later a large hydronephrotic kidney was removed. The pelvis, which was greatly dilated, contained a large quantity of purulent fluid. A stricture was also found at the ureteropelvic junction. Convalescence was uneventful. The urine is normal and the patient free from symptoms at the present time. The child's kidney could have been saved if the condition had been recognized in its incipiency and proper treatment instituted.

Case 4.—A boy, aged 10 years, entered the hospital complaining of dyspnea, malaise which was progressive in type, anorexia and nocturnal enuresis. He had not increased in height or gained in weight during the previous two years. He had measles eight years ago, was circumcised four years ago, and his tonsils were removed one year later. The family history was of no significance. He began to wet the bed at night when 2½ years of age. One year later a physician was consulted, but no diagnosis made or treatment advised. No improvement followed circumcision or tonsillectomy. He was treated occasionally by general practitioners, but no relief was obtained. Two years ago a urologist was consulted, but no definite diagnosis was made. Cystoscopy was performed at that time, but the ureters were not catheterized. Operation was not considered advisable. One month before admission his symptoms increased in severity and he was brought to San Francisco for treatment. Examination revealed a large, tender, kidney-shaped mass in the left lumbar region. The urine was loaded with pus cells. No phenolsulphonephthalein was excreted by the kidneys in two hours. The blood contained 38 mg. of urea in 100 c.c. Roentgenography disclosed both kidneys large and low. Cystography disclosed bilateral hydro-ureters. A single catheterizing cystoscope was introduced with difficulty because of a urethral stricture.

The bladder mucosa was inflamed and the right ureteral orifice larger than normal. It was impossible to introduce a catheter beyond either ureteral orifice. No indigocarmin appeared at either ureteral orifice within twelve minutes after intravenous injection. Following the cystoscopy, catheterization of the bladder was neccessary because of retention of urine. During this procedure the child developed convulsions and coma, and in addition, a nasal hemorrhage which was controlled with difficulty by packs. Glucose and sodium bicarbonate solution were given intravenously as well as by rectal drip, and the uremic symptoms gradually disappeared. The case is obviously inoperable, and the prognosis hopeless. The child's life could have been saved by a correct diagnosis and appropriate treatment when the symptoms first made their appearance.

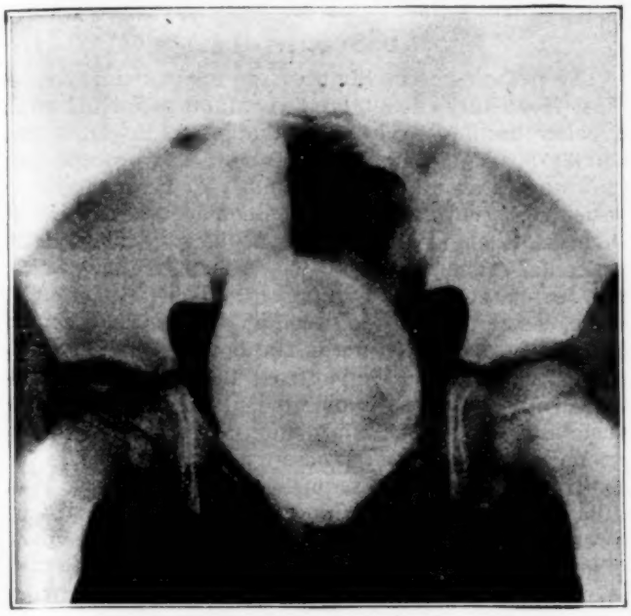

Fig. 3.—Bilateral hydro-ureters in a boy, aged 10 years.

CASE 5.—A girl, aged 14 years, entered the hospital, June 8, 1918, because of a mass in the left side of the abdomen which was first noticed four weeks previously. She did not complain of any subjective symptoms except constipation. Her family history was not significant. She had had measles and varicella. Fifteen months before entering the hospital she had had a sharp attack of pain in both sides of the abdomen which was accompanied by frequency of urination and pain and burning after urination. At intervals during a period of six weeks previous to two weeks before she entered the hospital she noticed blood in the urine. Her usual weight had been 106 pounds. Her present weight was 89 pounds. The right pupil was larger than the left, and reacted sluggishly to light. The left pupil was irregular, but reacted well to light and distance. There was dulness posteriorly over the left apex and harsh breathing posteriorly over the right apex. Scoliosis extended from the eighth dorsal to the third lumbar vertebra, with the convexity pointing to the right side. Examination of the left side of the abdomen disclosed a nonsensitive, firm, circumscribed, slightly movable mass extending from the lower border of the ribs to the crest of the ilium. The catheterized specimen of bladder urine contained numerous pus cells and a few blood cells. Cultures were negative. No tubercle bacilli were found, and the skin tests for both human and bovine tuberculosis were likewise negative. The blood count revealed 60 per cent. hemoglobin, 3,230,000 red cells and 10,600 leukocytes, of which 73 per cent. were polymorphonuclears. The temperature, pulse and respiration were normal. The Wassermann reaction was +++. Cystoscopy revealed a slightly inflamed bladder mucosa. The right ureter was catheterized to the pelvis, but it was impossible to introduce even a filiform bougie over 2 cm. into the left ureter. The urine from the right kidney was microscopically negative. After four injections of arsphenamin together with mercury inunctions and potassium iodid, there was an apparent decrease in the size of the tumor, and the patient was permitted to leave the hospital. Two months later, she reentered the hospital because of bronchopneumonia. The mass in the abdomen seemed smaller at that time. Before leaving the hospital, cystoscopy was again performed, and another unsuccessful attempt made to catheterize the left ureter. Indigocarmin injected intravenously appeared on the right side in four minutes. A less forceful, lighter blue spurt appeared at the left ureteral orifice in eight minutes. The urine from the right kidney was microscopically negative. It contained 252 mg. of urea in 100 c.c. The bladder urine contained many pus cells and only 112 mg. of urea in 100 c.c. The mass in the left abdomen was smaller and the antisyphilitic treatment was continued. Five weeks later, although it was impossible to introduce a catheter more than 2 cm. into the left ureter, I succeeded in injecting about 15 c.c. of a 20 per cent. solution of potassium iodid for pyelography. Because of the severe pain present, the patient was not roentgenographed at this time. The mass became larger following this injection. Two days later we succeeded in passing a filiform bougie to the pelvis of the left kidney. This was permitted to remain twenty-four hours. Operation was advised, but the patient left the hospital stating that she felt well.

Three months later she reentered the hospital. The mass in the left side was of the same size as at the first examination, and the urine contained a large number of pus cells. Culture revealed colon bacilli. The Wassermann test was now negative. I succeeded in passing a catheter about 10 cm. into the left ureter, and a 17.5 per cent. solution of sodium iodid was injected into the pelves of both kidneys. The pyelograms showed a normal right renal pelvis, but the left was multisaccular in appearance, a large amount of the injected fluid showing in the upper and lower poles. The upper portion of the left ureter, as well as the kidney pelvis, showed a marked irregularity. A large hydronephrotic kidney was removed through an oblique lumbar incision, and the patient left the hospital on the eleventh day following the operation in excellent condition.

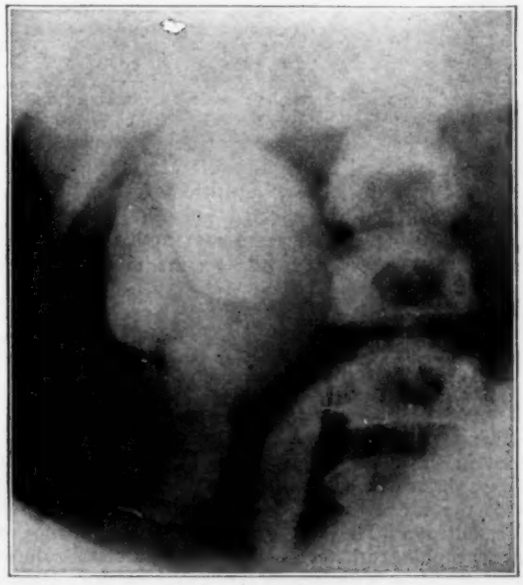

Fig. 4.—Hydronephrosis and hydro-ureter in a girl, 8 years of age.

This case was especially interesting because of the question of diagnosis. The absence of tenderness on palpation, the normal temperature, the rather low blood count, the history of hematuria and the positive Wassermann reaction were somewhat misleading.

PYELONEPHRITIS

Case 6.—A girl, aged 12 months, with bilateral pyelonephritis, had at times for the last two months suffered from pain during urination; the urine had been turbid and of strong odor, and micturition had been somewhat more frequent. She had been losing weight for the last month. The family history was not significant. The baby was breast-fed until one month before admission. She had never suffered from any previous illness. Examination failed to detect any urethral, vulvar or vaginal discharge. A catheterized specimen of bladder urine contained a moderate number of pus cells. Culture disclosed colon bacilli. No tubercle bacilli were found. Improvement resulted from appropriate diet, potassium acetate by mouth and irrigation of the bladder with a 5 per cent. solution of argyrol. Notwithstanding this improvement in the subjective symptoms, the urine remained turbid and contained many pus cells nine weeks after the beginning of treatment. As changing the reaction of the urine and the administration of hexamethylenamin resulted in an exacerbation of the symptoms, cystoscopy was considered advisable. Under ether anesthesia, the bladder was filled with 100 c.c. of boric acid solution and a Wolff single catheterizing cystoscope, 16 F., was introduced without difficulty. Several circumscribed areas of inflamed bladder

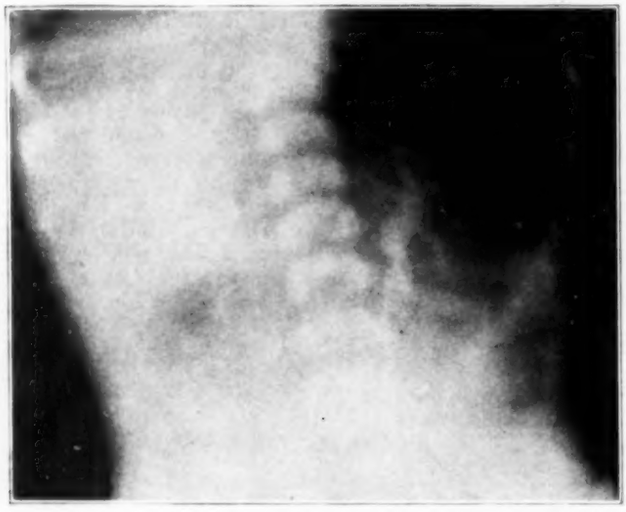

Fig. 5.—Pyelogram of left renal pelvis in an infant, aged 12 months, who was suffering from bilateral pyelonephritis.

mucosa were seen. The right ureteral orifice was normal. The left ureteral orifice was a little larger than the right and was surrounded by injected mucosa. Examination of the urine following catheterization of both ureters with No. 4 whistle-tip catheters gave the results tabulated herewith.

Right Kidney	Microscopic	Left Kidney
Numerous pus cells		Numerous pus cells
A few red blood cells		A few red blood cells
Numerous renal cells		Numerous renal cells
Colon bacilli	Culture	Colon bacilli
0.005	Urea	0.005

Following the intramuscular injection of phlorizin, sugar appeared in the urine from both kidneys in twelve minutes. Four days later the right ureter was catheterized and the pelvis of the kidney irrigated with a 0.5 per cent. solution of silver nitrate. The left ureter was catheterized with a roentgenographic catheter, and a 10 per cent. solution of sodium bromid was injected for pyelography. Four days later, cystoscopy was again performed, this time without anesthesia, the left ureter was catheterized, and the renal pelvis was irrigated with a 0.5 per cent. solution of silver nitrate. A roentgenographic catheter was then introduced into the right ureter and a 10 per cent. solution of sodium bromid injected for pyelography. The pyelograms of both kidneys revealed no pathologic condition. Cystography was also negative. There was no regurgitation of fluid into either ureter. To date the renal pelves have been irrigated eight times at intervals of from four to seven days. From 0.5 to 2 per cent. solutions of silver nitrate have been used on five and aluminum acetate solutions of the same strength on three occasions. Although the urine from both kidneys still contains a number of pus cells, the baby has gained weight and is apparently in good health.

PYELITIS

The pathologic condition of the upper urinary tract most frequently encountered in infants and children is a colon bacillus pyelitis. Although a diagnosis can usually be made without cystoscopy, this procedure is indicated in an appreciable number of cases, as many patients present symptoms common to other diseases, such as pyelonephritis, hydronephrosis, tuberculosis and renal calculi. It is likewise conceded that pyelitis may often be cured by constant alkalization of the urine, large quantities of fluid by mouth, rest in bed, and proper attention to the bowels. In this connection, Torres has emphasized the value of a carbohydrate diet in addition to drugs in rendering the urine alkaline. He calls attention to the fact that little or no alkali, such as potassium acetate, citrate or sodium bicarbonate is required for this purpose if a sufficient quantity of fruit juices and vegetables be given. Not infrequently, however, this method of treatment is unsuccessful, and it must be supplemented by dilatation of the ureters and pelvic lavage in order to accomplish the desired result. Cases 7 and 8 are illustrative of this contention:

Case 7.—A boy, aged 9 years, complained of pain in the hypogastric region on urination, pain in the lower left abdominal quadrant, and pain in the left lumbar region. Urination was frequent and fever occasionally present. The symptoms began three weeks previous to admission to the hospital and had not responded to the usual treatment for pyelitis. Examination revealed tenderness on palpation in the lower left abdominal and left lumbar regions. A catheterized specimen of bladder urine contained a large number of pus cells. Roentgenography of the kidneys and of the ureteral and bladder regions was negative. Examination of the urethra revealed a stricture 3 cm. from the meatus. Following an internal urethrotomy, a cystoscope was introduced and both ureters catheterized. The urine from the left kidney contained a large number of pus cells. Culture disclosed staphylococci. Pyelography with a 15 per cent. sodium iodid solution revealed normal renal pelves. The condition cleared up following three irrigations of the pelvis with silver nitrate solution.

Case 8.—A girl, aged 8 years, presented the usual symptoms of a pyelitis in the right kidney. Examination revealed a stricture at the external urethral meatus. This was dilated, the cystoscope was introduced, and the ureters were catheterized. The urine from the right kidney contained a large number of pus cells. Culture disclosed colon bacilli. Objective and subjective symptoms disappeared following a single lavage of the renal pelvis with a 1 per cent. solution of silver nitrate.

STRICTURE OF THE URETHRA

Strictures of the urethral meatus in both sexes, and of the lumen of the canal in boys, are not infrequently encountered. They are readily detected by means of the olive-tip bougie. As these obstructions are sometimes responsible for pathologic lesions in the upper urinary tract, investigation for this condition should be a part of the urologic examination of every child complaining of symptoms referable to the urinary tract.

Case 9.—The youngest patient suffering from urethral stricture that has come under my observation was a girl aged 3 years. She complained of frequent urination and pain in the

bladder region of one month's duration. The family history and past history were of no significance. Examination revealed a stricture at the external urethral meatus through which a No. 5 ureteral catheter was passed with difficulty. A catheterized specimen of bladder urine contained a few pus cells. Culture disclosed nonhemolytic streptococci. The symptoms improved after the second and disappeared after the fourth dilatation of the urethra.

CONCLUSIONS

In addition to pyelitis, urethral strictures, hydronephrosis, tuberculosis and other pathologic conditions of the urinary tract are frequently encountered in children.

Pelvic lavage with silver nitrate solution is often indicated in the treatment of pyelitis in children.

Modern urologic instruments should be used in the diagnosis and treatment of pathologic conditions of the urinary tract in children as well as in adults.

210 Post Street.

ABSTRACT OF DISCUSSION

DR. HERMAN L. KRETSCHMER, Chicago: As a broad, general statement one is justified in saying that infants and children do not receive very much routine urologic study. Certainly they do not receive the same amount of study that is given to adults. A few isolated attempts have been made, as is true, such as Dr. Hyman and Dr. Hinman have made, but there is not much work being done in this field. I think this is due to two facts: first, the size of the patients; and second, our limitations due to instruments. The more interest there is manifested in this work, the more effort will be put forth on the part of the instrument makers to provide us with smaller instruments. In some instances we have made cystoscopic examinations of patients with the ordinary pharyngoscope used by the nose and throat men. As brought out by Dr. Stevens, we can use a laryngeal instrument to dilate the ureter. We must educate the general practitioner and the pediatrician to the possibilities of urologic study in infants and children. There is no reason why these lesions should be different from those seen in adults, except a few congenital lesions.

DR. BRANSFORD LEWIS, St. Louis: There seems to be a general impression that if you let children go along with their urinary troubles they will outgrow them. In a girl, aged 3 years, when I made a cystoscopic examination, there was normal urine on the right side and foul, purulent urine on the left. There was a large pyonephrosis, but the parents had tolerated this condition because they thought the child too young to have anything done. We performed nephrectomy and obtained recovery. Another case was that of a little boy, aged 2½ years, who had been vainly endeavoring to urinate and continued to get worse. His suffering was terrific. Dr. Blair had tried catheterization with increasing lack of success, and finally had to give the boy an anesthetic every time he catheterized him. I found a very definite obstruction (contracture) at the neck of the bladder, which I opened up by cutting the neck of the bladder. The child got well. We should attack these problems just the same as if they were in grown persons.

DR. JOHN R. CAULK, St. Louis: The most important thing for us to do is to cooperate with the pediatricians and general practitioners, for they seem to hesitate to have these cases investigated. It is really remarkable how easily we can catheterize these children, but we have to be particularly careful with the child with a low function and a high nitrogen excretion. I watched a boy, aged 9 years, taper down in his function, and I hesitated to catheterize. The family insisted and I finally catheterized. In a minute or a minute and a half I got pus. The catheterization was performed with every aseptic precaution, but that child had a temperature of 108 F. and died within a few hours. Another child with low kidney function almost died. In other words, we should always find out the total kidney function before catheterizing, and with low general function I should much prefer to open the kidney. In the other cases of pyonephrosis, usually occurring in congenital cases, you cannot do too much surgery. The children often look as if they would die; but all of mine have survived. It is important to do a two stage nephrectomy, first simply draining and later removing the kidney. It seems well to separate the kidney posteriorly to get a cleavage line for the second operation. If the second operation is done within from two to four weeks, it is usually very simple. I have had no mortality. It is always well not to subject these children to too much surgery.

DR. A. R. STEVENS, New York: My experience with children has led me to feel that calculus of the urinary tract is much more common than is reported in the literature. Within a year I have seen three little girls, varying in age from 3 to 13 years, with pyuria; these all had calculi, one in the bladder and in two cases in the pyelonephrotic kidneys. The urine cleared up after removal of the stone from the bladder in one case, and after nephrectomy for pyonephrosis in two cases. In another case I found pus coming from the kidneys, but in such small quantity and with a history of such

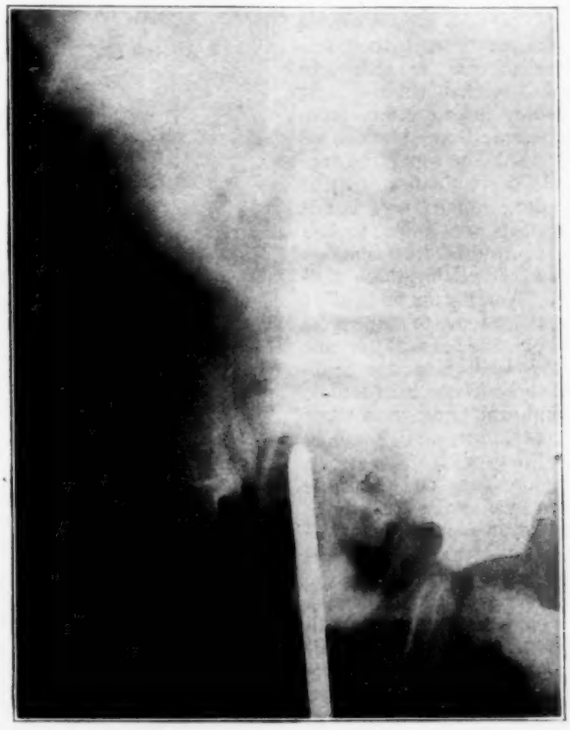

Fig. 6.—Pyelogram of right renal pelvis in an infant, aged 12 months, who was suffering from bilateral pyelonephritis.

marked improvement on treatment that I advised going on with hygienic measures. In the foregoing two kidney cases I used a direct vision, double catheterizing cystoscope of 18 F. caliber.

DR. ABRAHAM HYMAN, New York: During the last eight or ten years I have made cystoscopic examinations of approximately fifty children under 9 years of age. The youngest was a boy 17 months old. It is not necessary in most cases of gross surgical lesions to catheterize the ureters of these young children. One can obtain much information by chromocystoscopy. A solution of indigocarmin is injected into the buttocks; a small catheter is inserted into the bladder, and the appearance of the blue noted. The cystoscope is then introduced and the orifices are closely watched for the dye. In most instances the diseased kidney will fail to secrete any coloring matter, while from the healthy organ a deep blue will come. Of course, in some infants cystoscopy cannot be performed. A boy, aged 11 months, had been operated on for an intussusception but an enormously distended bladder was discovered. He had a very small penis and meatus which would not admit the smallest cystoscope. His bladder was

thoroughly irrigated and then filled with sodium bromid and a very good roentgenogram was obtained, showing two diverticula, one on each side of the bladder. These were successfully removed and the urine has since cleared up considerably.

Dr. F. P. Gengenbach, Denver: This paper is very timely here, and would also be timely in the Section on Diseases of Children, as well as in the Section on Practice of Medicine.

Dr. Charles M. Harpster, Toledo, Ohio: The great thing we need is proper instruments. I have seen a number of cases of sarcoma in children. I think it is accepted as a fact that sarcoma is found rather frequently in even young children.

Dr. Frank Hinman, San Francisco: I cannot agree with Dr. Hyman about the use of the cystoscope in boys under 4 years of age. I have made cystoscopic examinations of boys under 2 by doing external urethrotomy. This, of course, makes a minor operation and should be done only on very definite indication, but it is a very simple procedure. With respect to the use of the indigo carmin in preference to the ureteral catheter, I also disagree. It seems to me that we can get the most valuable information from microscopic examination of the urine. The separate functional determination is of secondary importance, and it is almost impossible to get any accurate idea of function after anesthetizing these children. Total function gives information as to the presence or not of at least one healthy kidney, and we do want to know the microscopic and cultural findings in these infected kidneys.

Dr. George R. Livermore, Memphis, Tenn.: I think the reason we have failed to make cystoscopic examinations is that most of us appreciate the difficulties of the procedure. It is really not a very difficult matter with children, and in very small children it is not always necessary to use an anesthetic. I have made cystoscopic examinations of children as young as 4 years. The functional test is of great importance, for the cystoscope is not without danger, and I agree with Dr. Caulk that the procedure is still more dangerous when we do it without knowing the functional ability of the kidneys.

Dr. William E. Stevens, San Francisco: I was glad to hear Dr. Lewis emphasize the fact that pyelitis and pyelonephritis, like many other pathologic conditions of the kidneys, are not self-limited diseases. Many cases are neglected because of the mistaken idea that these infections are self-limited. As Dr. Caulk has stated, bilateral examination of the kidneys is of great importance in the presence of low total renal function. Dr. Hyman has called attention to the value of indigocarmin. I frequently use this dye for functional kidney tests, and although it is of considerable value, it should not replace other renal function tests, even though ureteral catheterization is required. It is often necessary to catheterize the ureters in order to determine which kidney is involved, and to obtain urine for microscopic examination. From 0.5 to 2 per cent. solutions of silver nitrate have been most efficacious in the treatment of pyelitis in children. Many cases clear up after from one to three pelvic irrigations.

KÖHLER'S DISEASE*

GEORGE I. BAUMAN, M.D.
CLEVELAND

In 1908, Köhler described a new and unusual disease or malformation of the scaphoid bone of the foot, and to this condition the name "Köhler's disease" has since been applied. Probably on account of seeing three cases within a short time, Köhler thought the disease must be rather common, but this idea has not been borne out by the number of cases reported since 1908, nor by my experience in a fairly large orthopedic clinic. Thirty-four cases have been reported. Thirteen of the patients were boys, five girls, and in sixteen the sex was not mentioned. The age of incidence varied from 2½ to 7 years with an average of about 5 or 6. Two cases, both in boys, will be reported in this paper.

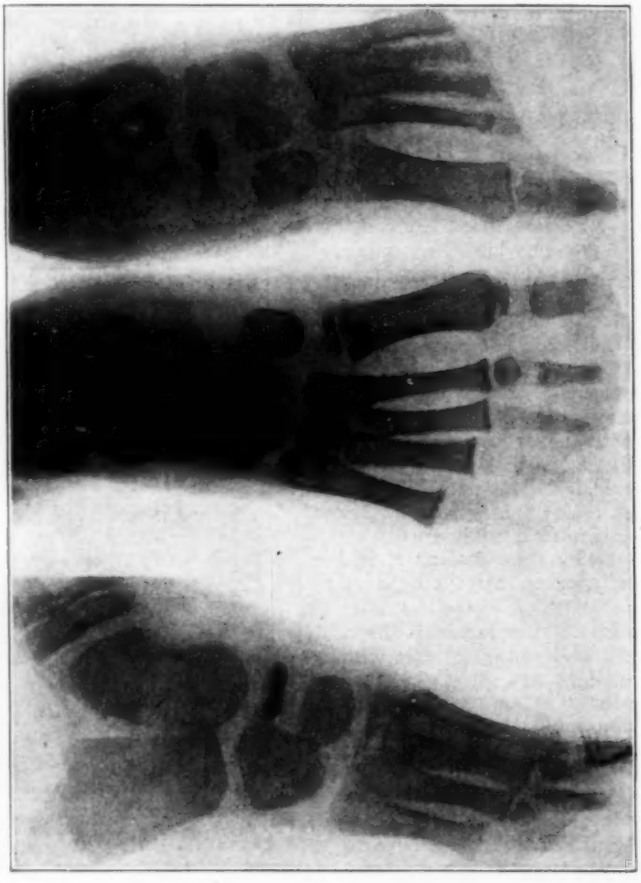

Fig. 1.—Condition of left foot and ankle in Case 1.

The condition seems, then, to be much more common in boys than in girls, and this may add weight to the theory that the trouble is due to trauma. Many are of this opinion, some even maintaining that it is a compression fracture of the bone. Others are of the opinion that it is an osteitis, possibly of rheumatic origin. Against this might be cited the fact that in only one case was there any associated similar condition in the patient. The center of ossification for the scaphoid is the latest of all the tarsal bones to appear, and this fact may have some bearing in considering the etiology of the affection. The most one can say is that it is probably an osteitis due to trauma or absorption from some focus of infection and that this osteitis interferes with the normal development of the bone. It is probably not due to tuberculosis, osteomyelitis, rickets or syphilis.

The symptoms and the course of the disease are quite constant. The first complaint is a limp; pain is present usually only on walking. There may be some redness, swelling or thickening. There is usually some tenderness over the scaphoid, but no muscle spasm or atrophy in the leg.

The disease pursues a mild course, and the symptoms disappear within a few months or a year. The shape and structure of the bone as shown by the roentgen ray seem to return to normal with the disappearance of the symptoms.

* Read before the Section on Orthopedic Surgery at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

Treatment consists essentially in support, and this may be obtained by a cast, by adhesive plaster strapping, or by a brace.

In order to establish, if possible, any connection between this disease in children and any variation in the shape of the adult scaphoid, we have made a study of 500 scaphoids from skeletons in the anatomic museum of Western Reserve University.

The size and shape of the scaphoid was found to be so variable that a normal was difficult to establish. There was rather marked thinning in twenty-four specimens, but these were all bilateral and usually accompained by some thinning of other bones. From a study of these specimens, therefore, no connection between Köhler's disease and variations in the adult scaphoid could be established. We are not convinced, however, that such a profound change as is found in these cases in children could be outgrown before adult life.

REPORT OF CASES

CASE 1.—F. M., boy, aged 6, first seen, May 27, 1919, complained of limp and pain in the left foot. The family history was negative. Birth had been normal, at full term. The patient had had measles at 2 years of age, mumps two or three weeks previously and influenza Dec. 18, 1918. There had been no ear, nose, throat or tooth infections; no rheumatism or other joint troubles. The present illness had developed four weeks before, with pain and limp. Pain was noted especially in the region of the scaphoid. It was somewhat worse at night. There was a little intermittent swelling but no redness. The patient tired easily and was somewhat peevish. He had refused to walk for two days. He had had no cough, night cries or sweats. The patient's general condition was good. There was some limp and some swelling in the region of the left scaphoid. There was quite marked tenderness, a little pain on motion, but no muscle spasm. The arch was good. There was no redness nor heat. A roentgenogram (Fig. 1) revealed the scaphoid about half the size of the right, irregular and roughened. The architecture of the bone could not be distinguished. There was some increase in density. A cast and crutches were employed. Treatment continued for three months with subsidence of symptoms, but with little, if any, improvement in the roentgen-ray appearance of the bone. A little soreness and limp persisted for about two months. At last report, in January, the patient was entirely well; no recent roentgenograms have been made.

Fig. 2.—Condition of right foot in Case 2.

CASE 2.—A boy, aged 5, first seen Jan. 10, 1920, with a complaint of trouble with the right foot, gave a negative family and personal history. November 24 he had turned his ankle and had had some pain for a week or so; since then there was only a little pain at times, on certain movements. A little deformity has been noticed (varus, pigeon-toe). The patient walked with a slight limp, the foot in some varus, the arch high. There was a little thinning in the region of the scaphoid and the internal cuneiform. There was no heat or redness. Motions were free and painless. Roentgen-ray examination (Fig. 2) revealed marked thinning in the scaphoid and increase in density. The architecture of the bone could not be distinguished. The bone was irregular and rough. A little change of similar nature was noted in the internal cuneiform. A cast was employed for five to six weeks. The patient had no other treatment and no further trouble. He walked without a limp. The right arch was still higher than the left. A roentgenogram made May 24, 1921, showed a little thinning and an increase in density in the scaphoid.

Osborn Building.

ABSTRACT OF DISCUSSION

DR. HENRY W. FRAUENTHAL, New York: I have not had the opportunity to make roentgenograms of the scaphoid in adults, but I have a translation of Köhler's description of the disease published in 1908, and he makes some important points in diagnosis. One is that the condition is nontraumatic, and the other is that the bone is denser, about one fourth the size of a normal bone, and that recovery takes place after two or three years. The only treatment in Köhler's cases was fixation. The patients were boys between the ages of 5 and 9, and he excluded tuberculosis and syphilis in the history, or rather in the fathers' histories. He makes one important point, that the greatest pain occurred at night, and that these patients have disturbance in their sleep, due to the pain, which would lead one to think of syphilis. The appearance of the scaphoid in Dr. Bauman's slides would make me think it is bone syphilis. In the literature, cases have been reported in which a cure was effected in two months, being an acute process: that is quite different from Köhler's disease, which lasts from two to three years, and in my judgment is a tuberculous development on a syphilitic base. In bone lesions of the hand and foot we often see a tuberculous invasion on a syphilitic focus. This is described by Köhler.

DR. EDWIN W. RYERSON, Chicago: This is a very interesting condition, but I am not sure that we can call it a disease. In the large clinic of the Children's Memorial Hospital in Chicago only one case has been recognized since Köhler wrote of his cases. Another case is that of a little girl under treatment for a year and a half for tuberculosis of the ankle joint. The last time she came in, the opposite foot was roentgenographed and typical Köhler's disease was found in the scaphoid. Mention has been made of roughness of the surface of the bone. What is seen in a roentgenogram is not the surface of the bone, but the ossifying part; hence one cannot say that the surfaces are rough or destroyed, because they are not visible.

DR. WILLIS C. CAMPBELL, Memphis, Tenn.: I have seen several of these cases and want to make one point only, and that as to treatment. These patients should have a plaster cast or antisyphilitic treatment. I believe the condition is similar to traumatic epiphysitis of the anterior tibial tubercle, and requires no definite treatment and no prolonged use of plaster casts with crutches. I use a simple arch support within the shoe, which is quite sufficient.

DR. GEORGE I. BAUMAN, Cleveland: The Wassermann and von Pirquet tests were negative, and the family history was negative for tuberculosis and syphilis in my cases, and I do not think they could be so diagnosed. The first patient was not fully recovered after three months. The roentgen-ray

picture did not change, and the symptoms did not disappear in this length of time. In the second case the symptoms were not so severe, and they did disappear in a short time. I think the condition is of interest chiefly from a diagnostic standpoint.

LAVAGE OF THE RENAL PELVIS

AN EXPERIMENTAL STUDY *

VINCENT J. O'CONOR, M.D.
CHICAGO

This experimental work was undertaken to determine the comparative effects, on the renal pelvis and kidney, of the various solutions now being used for "pelvic lavage." While the effects of pyelographic mediums have been very carefully studied from an experimental point of view,[1] our knowledge of the action of the drugs used in the renal pelvis has been derived mainly from the clinical results obtained by their use. The experiments were carried out to ascertain the relative penetration, the route and degree of absorption, and the degenerative and regenerative changes brought about by the action of the drugs on the normal ureter, pelvis and kidney substance.

EXPERIMENTAL TECHNIC

The brevity of a paper before this section necessitates a general summary of this work rather than a detailed study of the individual protocols.

Thirty dogs were used in the experiments. Under ether anesthesia a laparotomy was performed and the bladder was opened in the median line. A No. 5 F. ureteral catheter was passed 4 cm. up one of the ureters. A rubber band was then placed around the lower portion of the ureter, preventing any reflux which might occur around the catheter.

The various solutions were then injected through the catheter either by gravity or by means of a record syringe. From 1.5 to 2.5 c.c. of the solution was injected in each instance. When gravity injection was used, a buret was so attached that the height of the injecting column of fluid was never more than 6 inches above the level of the dog's bladder. When syringe injection was used, the solution was introduced as slowly and steadily as it is possible to keep up a uniform inflow with a 5 c.c. record syringe; this closely approximated the same force previously calibrated at from 75 to 100 mm. of mercury pressure. The solution in question was held in the ureter by clamping the rubber tubing connected with the catheter. This interval varied in the different experiments from fifteen to thirty minutes.

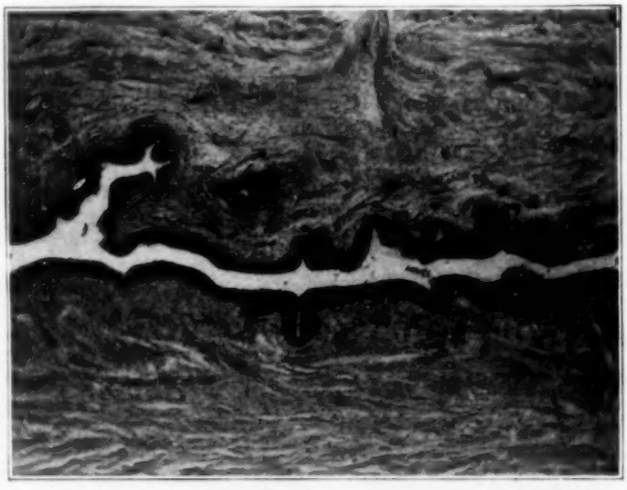

Fig. 1.—Section of ureter, just below ureteropelvic junction, removed twenty minutes after lavage with 0.5 per cent. silver nitrate solution.

In those instances in which the immediate effects of the drug were under investigation, the fluid was allowed to run out through the catheter, and immediately following this both kidneys and ureters were excised. The kidneys were then bisected down to the pelvis, and the kidney, pelvis and ureter were thoroughly washed with distilled water. The sections were then prepared by various methods.

In the dogs, when longer periods of observation were desired, the rubber band was removed, the catheter withdrawn and the bladder was closed about a rubber tube. These operative procedures were carried out under strictly aseptic technic. The dogs were killed at a later date and the kidneys removed for study. In preparing the specimens in which the silver solutions were used, the tissues were exposed to direct sunlight for one hour. They were then fixed in solution of formaldehyd and, after embedding in paraffin, were stained with hematoxylin and eosin. When boric acid or aluminum acetate solutions were used, the sections were prepared by the ordinary methods of fixation and staining. In those tissues in which the various dyes were used, the tissues were prepared by frozen section and counter stained only with hematoxylin or eosin, depending on the reaction of the dye in question. In all experiments, careful gross and microscopic study of both the injected and the noninjected kidneys and ureters was made.

RESULTS

Boric Acid Solution.—Specimens after the injection of saturated boric acid solution, both by the gravity and syringe methods, showed no abnormality of the ureter, pelvis or kidney tissue. These experiments demonstrated that there is no physical injury to the epithelium of the pelvis or ureter following a slight overdistention for thirty minutes with a nonirritating solution.

Flavine and Brilliant Green.—When 1:500 acriflavine or 1:1,000 brilliant green solution had remained in the pelvis for thirty minutes, frozen sections, stained with eosin, showed the following: The superficial layers of the ureteral and pelvic epithelium were uniformly stained a yellowish green. There was slight disintegration of the nuclei, but there was no break in the continuity of the lining membrane. No dye was seen in the deeper layers of the epithelium, nor was any present in the submucosa or muscularis. The tips of the pyramids in both instances showed a penetration of the dye through the epithelial and basement membrane, and in several areas the most distal portions of the collecting tubules contained small amounts of the dye. No dye was present outside the tubules, and none was found at a higher level. There was no dye found in the opposite kidney or ureter. There was no round-cell infiltration in the neighborhood of the dye.

In a dog killed forty-eight hours after the injection of 1:500 acriflavine, no trace of the dye was found anywhere in the tissues. The superficial layers of epithelium had been denuded from the ureter and renal pelvis in a very uniform manner, but there was no round-cell infiltration in the submucosa.

Gentian Violet.—Two cubic centimeters of a 10 per cent. solution of gentian violet (in water) was injected

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* Read before the Section on Urology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

*From the Laboratory of Surgical Research, Harvard Medical School, Boston, and the McCormick Memorial Institute, Chicago.

1. Keyes, E. L., and Mohan, H.: The Damage Done by Pyelography, Am. J. M. Sc. **149**: 30-41, 1915. Braasch, W. F., and Mann, F. C.: Effects of Retention in the Kidney of Media Employed in Pyelography, ibid. **152**: 336 (Sept.) 1916. Burns, J. E., and Hopkins, P. B.: A Comparative Study of the Effects of Thorium and Other Substances on the Renal Parenchyma When Retained, J. Urol. **2**: 145 (April) 1918. Cameron, D. F.: A Comparative Study of Sodium Iodide as an Opaque Medium in Pyelography, Arch. Surg. **1**: 184 (July) 1920.

by gravity and allowed to remain twenty minutes. The pelvic and ureteral epithelium was faintly stained in the superficial layers. There was no evidence of disintegration of the nuclei. No dye was noted in the deeper structures nor in the renal tubules.

Aluminum Acetate Solution.—Two cubic centimeters of a 2 per cent. aluminum acetate solution was

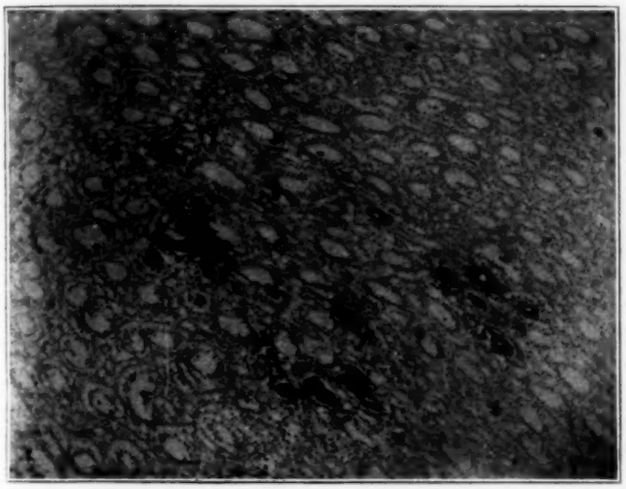

Fig. 2.—Silver solution in collecting tubules of kidney twenty minutes after low pressure gravity injection.

retained for thirty minutes after syringe injection. The epithelial lining was everywhere intact, although the regularity of the cell strata seemed affected by a diminution in size and outline of the more superficial cells. There was no erosion of the pelvic mucosa. The renal tubules and parenchyma were normal. There was no round-cell infiltration in the submucosa.

Specimens examined from a second similar experiment, but taken after forty-eight hours, gave somewhat different findings. The pelvic and ureteral epithelium was unevenly denuded of the more superficial layers of cells. The epithelial cells beneath these areas were irregular in outline, and some of the nuclei showed partial disintegration. There were no areas of round-cell infiltration in the submucosa, muscularis or medullary tips. The renal tubules appeared normal.

Silver Nitrate Solution.—Ten dogs were used to study the effects of silver nitrate. The solution was used in the strength of 0.5 per cent. Both the gravity and syringe methods were used for injection. The immediate effects were noted after a twenty minute interval. The remote effects were studied by killing a series of dogs every forty-eight hours for fourteen days.

The results were as follows: The immediate effect of silver nitrate solution on the ureteral and pelvic epithelium is a uniform corrosion of the entire mucosa. The more superficial layers are entirely replaced by a uniform deposition of metallic silver, and the deeper layers show a symmetrical distribution of silver within the cells. The nuclei of all the cells show partial or complete disintegration. The reaction is somewhat more marked when a 1 per cent. solution is used, as compared with the effects of a 0.5 per cent. solution. All of the medullary tips are corroded through the mucosa and submucosa, and there is a diffuse deposit of silver for a short distance both in and about the tubules in these areas. The strength of the silver solution used made no relative difference in the depth of penetration through the submucosa at the medullary tips. When a syringe was used for injection, the penetration at these areas was only slightly more pronounced than after injection by gravity.

Metallic silver was found in every instance in the more distal portions of the collecting tubules. The distribution was always irregular, but in the main followed the tubules from the tips of the calices, the amount always being greater in these areas situated at either pole of the kidney. No metallic silver was ever found above the collecting tubules. In every experiment the weaker solution of silver nitrate seemed to be carried higher in the collecting tubules than the stronger solution, although the penetration through the tips of the pyramids was slightly less marked.

No silver was ever demonstrated in the cortex, glomeruli, or the peripelvic or capsular structures. No silver was ever found in the opposite kidney or ureter.

After forty-eight hours the following effects were noted: The pelvic and ureteral mucosa was partially denuded and irregular. A slight deposit of metallic silver was still noted over the surface of some areas. The nuclei of all the cells were in various stages of disintegration, but the lower strata were still uniform in their arrangement. In many areas the entire mucosa was separated from the submucosa, and here there was a beginning round-cell infiltration. No reaction was noted in or about the tubules. The tubular walls appeared normal. The glomeruli were normal. The opposite kidney and ureter were normal.

Four days after lavage of the pelvis with silver nitrate, sections showed the following: The mucosa of the pelvis and ureter was entirely destroyed, with the exception of a very few areas in which several layers of epithelium had not separated from the submucosa.

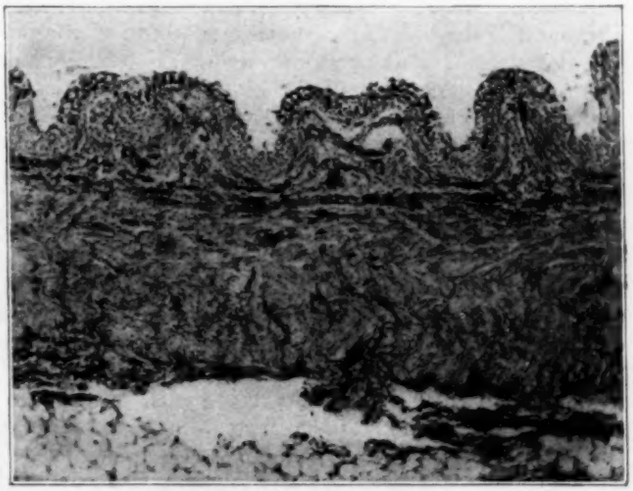

Fig. 3.—Section of ureteropelvic junction; specimen removed forty-eight hours after lavage with silver nitrate solution.

There were numerous areas of round-cell infiltration in the submucosa. There was no abnormality noted in the tubules, renal parenchyma or glomeruli.

Six days after lavage with silver nitrate solution, the disintegration of the epithelial cells had ceased and the mucosa was being regenerated by a bridging over of the epithelial layers. The process was apparently uniform along the entire mucosa. There were still numer-

ous areas of round-cell infiltration in the submucosa. The glomeruli, tubules and renal parenchyma were normal.

Eight days after lavage with silver nitrate, the process of regeneration of the epithelial lining of the pelvis and ureter was well advanced, but the surface was irregular and the healing was not complete.

Fig. 4.—Destructive reaction in ureter four days after twenty minute lavage with 0.5 per cent. silver nitrate solution.

Ten days after lavage, the epithelial lining had been completely regenerated and the superficial layers of cells were intact. No reaction was noted in the contiguous tissues.

Mercurochrome 220.—A 1 per cent solution of mercurochrome 220 was used in this series of experiments. By fixing in formaldehyd and then making frozen sections, the red dye will be entirely preserved in the tissues. The latter can then be stained with hemotoxylin and a striking contrast picture obtained. Mercurochrome 220 stains the superficial epithelium of the pelvis and ureter in an irregular manner. There is no loss of surface epithelium, although there are areas in which the nuclei of superficial cells are partially disintegrated. The dye penetrates through the epithelial lining in all areas, and is uniformly distributed throughout the submucosa and muscularis. In certain areas, especially at the ureteropelvic juncture, it has stained through to the serosa of the ureter.

Under low pressure gravity injection when the kidney was removed twenty minutes after the introduction of 2 c.c. of mercurochrome 220, the dye was seen ascending the lumina of the tubules.

The majority of the tubules from each papilla contained the dye. The tubules were filled with the dye for varying distances. In some instances only the collecting tubules contained the dye; in others the dye had been carried the entire distance upward to, and surrounding, the glomeruli. Above the level of the pyramidal tips there was no dye outside the tubules. In experiments in which greater pressure was exerted (syringe injection), the dye ascended more uniformly throughout the entire length of the tubules. The tubules at either pole of the kidney took up the dye more readily than in the central portion of the kidney. No dye was ever found in the uninjected kidney.

Forty-eight hours after lavage with mercurochrome 220, there was no dye found in the tubules or pyramidal tips. The surface epithelium of the pelvis and ureter was intact, and there was no denudation apparent. The cytoplasm of only an occasional epithelial cell retained a reddish color. The submucosa and muscularis were still stained a deep red. There was no round-cell reaction in the mucosa or submucosa, and the tubules and medullary tips were normal.

The submucosa and muscularis of the ureter and pelvis retained the dye for from five to seven days without any surrounding tissue reaction. The kidneys in these dogs were entirely normal. Serial sections were made of the kidneys which were removed twenty minutes after the injection of mercurochrome 220 by gravity. These showed that the dye had traveled directly up the lumen of the individual tubule as far as the glomerulus. There was no dye in the opposite kidney.

COMMENT

The pathway of absorption from the renal pelvis has been a matter of some controversy. My findings with mercurochrome in this series of experiments substantiates the work of Burns and Swartz.[2] The pathway of absorption, at least when there is an appreciable increase in intrapelvic pressure, is directly up the tubules. In the case of mercurochrome 220 this absorption is very rapid and complete even when only a very low gravity injection was used. It is possible that other dyes used in this study made the same ascent, but that I was unable to demonstrate them because of technical difficulties in preserving them in the tissues. The dye is carried clear to the glomeruli and stains the walls of the glomerular capillaries. No dye was found in the opposite kidney in any instance; and the unbroken continuity of the dye in the tubules, as demonstrated by serial sections, precludes the suggestion of Weld[3] that reabsorption from the blood stream may account for the presence of the substance

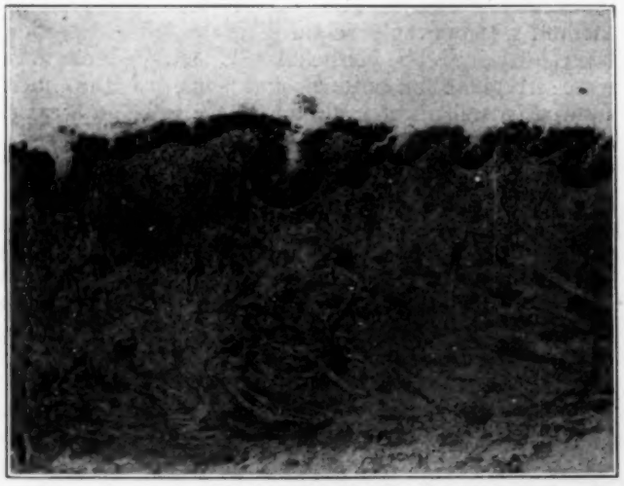

Fig. 5.—Section of ureter eight days after lavage with silver nitrate; regeneration of mucosa is almost completed; there is an area of round-cell infiltration in the submucosa.

in the cortex of the kidney. The ascent in the tubules, of solutions injected into the pelvis, takes place most rapidly at the poles of the kidney. As Weld has previ-

2. Burns, J. E., and Swartz, E. O.: Absorption from the Renal Pelvis in Hydronephrosis Due to Permanent and Complete Occlusion of the Ureter, J. Urol. 2: 445 (Dec.) 1918.

3. Weld, E. H.: Renal Absorption, with Particular Reference to Pyelographic Mediums, M. Clin of N. America 3: 713 (Nov.) 1919.

ously shown, the break in kidney substance will first occur in these areas when too great an intrapelvic pressure is induced.

Weld noted no absorption of phenolsulphonephthalein from the ureter of the dog in four days. In my

Fig. 6.—Frozen section of kidney removed twenty minutes after gravity injection, showing the collecting tubules filled with mercurochrome.

observations, mercurochrome remained in the submucosa and muscularis for from five to seven days, whereas it was not found in the tubules or parenchymal tissue after forty-eight hours. Magoun [4] has shown that the pelvis of the kidney may readily be the source of infection of the blood stream. Absorption through the wall of the ureter or extrarenal portion of the pelvis does not appear to occur in appreciable amount.

Silver nitrate solutions destroy the mucosa by corrosion. No silver penetrates below the epithelial lining. Some silver can be found in the most distal collecting tubules, but it is minute in amount compared with the various dyes or such colloidal silver solutions as silvol. In the dog it takes ten days for the process of destruction and regeneration to be completed after a twenty minute exposure to 0.5 per cent. silver nitrate solution.

Mercurochrome 220 is the most penetrating and least irritating antiseptic among the drugs studied. The reaction of the tissues to this dye differs markedly from the silver solutions. There is only a very slight loss of surface epithelium, and there are no definite areas of round-cell infiltration in the submucosa. Young, White and Swartz [5] found that the epithelial layers of the pelvis and ureter were more uniformly stained than the deeper structures. The sections examined in this series of experiments show a greater and more uniform penetration of the deeper structures than was primarily claimed for the drug by the original authors.

4. Magoun, J. A. H., Jr.: Pelvis of Kidney as Possible Source for Infection of Blood Stream, J. A. M. A. **74**: 73 (Jan. 10) 1920.

5. Young, H. H.; White, E. C., and Swartz, E. O.: A New Germicide for Use in the Genito-Urinary Tract: "Mercurochrome-220:" Preliminary Report of Experimental and Clinical Studies, J. A. M. A. **73**: 1483 (Nov. 15) 1920.

The work of Cabot and Crabtree [6] and others has demonstrated that the bacteria in persistent pyelonephritis are located in the submucosa of the epithelial lining of the pelvis and pyramidal tips, and less frequently in the convoluted tubules and in the lymph areas about the tubules.

Silver nitrate causes a marked superficial reaction which destroys the mucosa and brings about a reaction in the submucosa. Regeneration occurs in ten days. Mercurochrome penetrates more markedly to the deeper structures, and comes in direct contact with the tubular epithelium and the parenchyma of the pyramidal tips.

The variation of an antiseptic in the treatment of any localized chronic infection has recently been advocated by Richet [7] after a research on the chemical, biologic and bacterial reaction of various antiseptics. From a purely experimental point of view it would seem that pelvic lavage done alternately with silver nitrate and mercurochrome 220, or some equally penetrating dye, might give us better results than those achieved by the sole use of either one.

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ABSTRACT OF DISCUSSION

DR. WILLIAM C. QUINBY, Boston: The slides Dr. O'Conor has shown demonstrate the results of silver nitrate very strikingly. Silver nitrate is a corrosive; it destroys tissue. It may be that for therapeutic purposes you wish to get such a resection, but it is not ideal. The empiric results of silver nitrate for lavage show its use to be beneficial; but if it is beneficial, it is only because the whole of the mucosa of the passages is destroyed and, in the reaction called forth in repairing this, such increased vascularity is called forth that

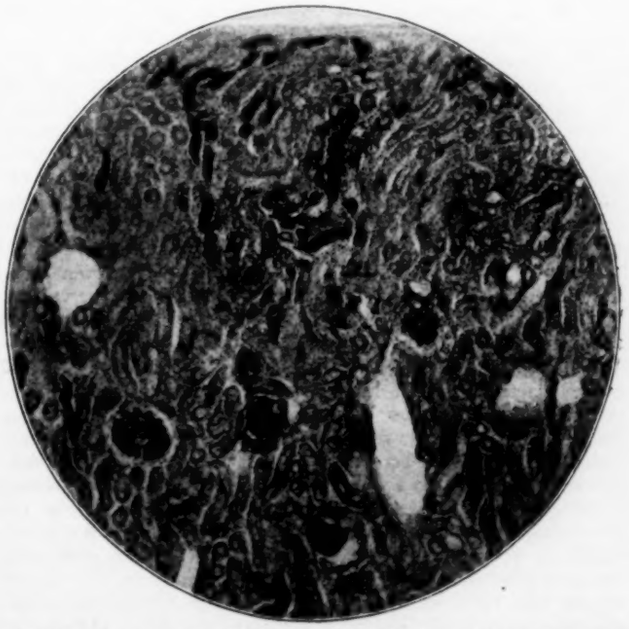


Fig. 7.—Frozen section of kidney removed twenty minutes after gravity injection. Note mercurochrome surrounding glomeruli and in the proximal convoluted tubules.

it carries with it destruction of bacteria. The slides which Dr. O'Conor has shown were made with only 0.5 per cent. silver nitrate, and it looks as though this was a dangerous

6. Cabot, Hugh, and Crabtree, E. G.: Nontuberculous Renal Infections, Surg., Gynec. & Obst. **23**: 495 (Nov.) 1916.

7. Richet, C.: Research on Antiseptics, Medicine **1**: 12 (Sept.) 1920, Biol. No. A, 719.

agent. If we wish to explain the fact that there is no difficulty following its use, the only explanation can be that it causes so much corrosion that it does not ascend into any but the lower tubules. A less corrosive solution, on the other hand, such as mercurochrome, will easily ascend sometimes as far as the glomerular capsule.

DR. A. E. GOLDSTEIN, Baltimore: In some recent experiments I have been able to demonstrate that, if a solution (sodium iodid in my experiments) was injected into the kidney, a definite expulsion time existed; in normal cases this was from three to seven minutes. No histologic studies were made of these kidneys, but fractional ureteropyelograms were made to see whether the solution was entirely out. Whether the same result can be obtained when dyes are used I am unable to state. Dr. O'Conor mentioned that in his experiments he tied the lower end of the ureter. This, of course, did not allow the solution to run out through the catheter, and it would necessarily have to remain in the kidney. It would be interesting to inject these solutions without tying the ureter and observe whether the solution would go into the kidney capsule and kidney proper, as this is what is done clinically. In pathologic cases, I have found that in injecting sodium iodid into the kidney it would remain as long as forty minutes in the kidney pelvis and ureter. If what Dr. O'Conor claims would occur in the human kidney as well as in the animal without tying the ureter, then, I think, silver nitrate would do much damage in pathologic cases, but this I have not observed in my experience.

DR. VICTOR D. LESPINASSE, Chicago: I have always been more or less skeptical about silver nitrate for pelvic lavage, probably because of some more disastrous results from it than most men obtain. Heretofore, pelvic lavage has been done very infrequently by me. Since mercurochrome came out, however, I have used it very extensively, and the results obtained have been most gratifying. From Dr. O'Conor's work I see why we obtained the results we did. Mercurochrome apparently makes the medium unsuitable for the growth of the organisms and still does not kill the cell. I did a similar piece of work on the vas and found as much variation between the different antiseptics then as Dr. O'Conor has reported in the kidney. If you wish to sterilize a patient, inject a little acriflavine, 1:1,000 into the vas deferens.

DR. JOHN R. CAULK, St. Louis: One or two things which have quite a big bearing on pyelography bear out what Dr. O'Conor has shown concerning injection of silver salts into the kidney pelvis. About a month ago a patient was given lavage for pyelonephritis and we injected about 1 c.c. of silver nitrate into the pelvis. She got great relief from the lavage; within a few days gallbladder plates showed the most beautiful stereoscopic renal pyelograms. That stimulated me to see what was the cause of this and whether we could reproduce it. The condition faded away within ten days, first leaving the true pelvis and then fading from the calices. We have never been able to reproduce it. The woman had a normal urine; she had not had drugs.

DR. JOHN T. GERAGHTY, Baltimore: We cannot always make practical application of the information we get from test tubes. Dr. O'Conor's work shows us that we should not do renal lavage until we are sure that the kidney can empty itself. If we have a retention we must not use silver nitrate, for we may get into serious difficulties. As to the practical value of silver nitrate and mercurochrome, the latter in the test tube is very much better and in the kidney the silver nitrate is very much better. It is not always the sterilizing influence that counts, but the reaction which is set up. Silver nitrate has been used for many years in infections of the genito-urinary tract, and it is not right for us to criticize it. It is the best thing we have had. It sets up a tremendous reaction. Silver nitrate increases the leukocytosis. As to the damage done the kidney, we have used silver nitrate for years, usually beginning with 1 per cent., after proving that the kidney can empty itself, and increasing to 5 per cent. if necessary. I have treated these patients for other troubles many times afterward, and have yet to find any damage done to the kidney that can be estimated functionally.

DR. HOMER G. HAMER, Indianapolis: In the base hospital at Camp Pike we had a man on whom we did lavage of the kidney pelvis with a solution of silver nitrate. A day or two afterward a roentgenogram of the kidney region showed a beautiful pyelogram. We tried to reproduce it later but could not. The patient had been taking large doses of iodids, and it is possible that the combination may have had something to do with it.

DR. A. J. CROWELL, Charlotte, N. C.: I wish to emphasize what Dr. Geraghty said about the use of silver nitrate. Dr. O'Conor has shown that the injection of silver nitrate into the kidney pelvis, if left in for a considerable length of time, undoubtedly does damage to the kidney epithelium. I have noticed that we frequently get brilliant results from the use of silver nitrate, and at other times our results have been disappointing. Dr. O'Conor's paper gives me the explanation. I am satisfied that if the kidney pelvis empties itself completely we are perfectly safe in the use of this remedy, and will obtain excellent results from its use in infections of the kidney pelvis.

DR. EDGAR G. BALLENGER, Atlanta, Ga.: A patient who had an idiosyncrasy to mercurochrome was given a pelvic lavage of 8 c.c. of a 1 per cent. solution, and immediately there was a marked reaction. We had previously given him pelvic lavage on a number of occasions with other remedies, and had no reason to think the solution did not flow out, and we saw no cause for the serious condition which developed. The patient remained at the point of death for about three weeks. We had made up a quart of the solution, and subsequently used it on many other patients without any trouble, but in this individual it caused hematuria, pyuria, very severe pain in the back, marked rise in temperature and about the stormiest reaction we have seen following an injection of any kind.

DR. RICHARD F. O'NEIL, Boston: It seems to me that the type of pelvis which empties itself completely does not require injection. I believe that when there is good drainage these patients will recover without lavage.

DR. HERMAN L. KRETSCHMER, Chicago: I have used a lot of silver nitrate in the kidney pelvis and I shall continue to do so, because the results have been very gratifying. The fact that silver nitrate when retained produces a reaction should not influence us at all. As Dr. Geraghty has said, it is one of our most valuable agents. I think the fact that it does produce this reaction is the reason it is of so much benefit to our patients. Dr. O'Conor tied the ureters, but in lavage we do not tie the ureters. In lavage we have always made it a rule to use small catheters so that the silver nitrate would flow out of the catheter and not be retained. I think the paper has shown that the silver nitrate is not carried into the other kidney, and believe this is due to the fact that erosion of the mucosa occurred, and because not enough pressure was used.

DR. JOSEPH HUME, New Orleans: As Dr. Geraghty pointed out, Dr. O'Conor was not dealing with human beings but with dogs, and conditions are not the same. I wish to take my stand with Dr. Geraghty and Dr. Kretschmer about silver nitrate, for it is by all means the most superior drug we have. Dr. O'Neil says that if the kidney has drainage, the kidney gets well. I cannot understand that. We see many cases of pyuria and other conditions that persist for years, and yet the kidneys are open. The interesting thing is how to use silver nitrate. There is a great lack of information as to how to use pelvic lavage. I repeatedly lavage a kidney two or three times a day in cases that require it, and no harm is done. These cases have to be taken care of indefinitely. It has sometimes been a year or a year and a half before I have succeeded in curing some of these patients whose disease has been of twenty years' duration. If you will wash out the kidney with salt solution following lavage you will not have reactions and you will get cures.

DR. FRANCIS R. HAGNER, Washington, D. C.: I have been much interested in the pyelitis of pregnancy. These patients all have more or less retention of urine in the pelvis of the kidney. I have found that by lavage the results have been brilliant in many instances. But we must do something to relieve the retention. Associated with the washing of the kidney pelvis I have these patients take the knee-chest posi-

tion about every three or four hours during the day for five or ten minutes at a time, and find this of much assistance. This position seems to drain out the urine from the kidney pelvis. We have had patients who have had fever for many days, and immediately following pelvic lavage, and postural treatment, they have had an absence of fever and gone through their pregnancy without difficulty. I am in favor of silver nitrate and believe Dr. Geraghty is right. You are all probably familiar with the work Dr. Caulk has done with the Bulgarian bacillus. We have used this in many cases having infection of the kidney with alkaline urine. Some we treated with sliver nitrate and other forms of lavage over long periods without results. After the use of the Bulgarian tablets dissolved in 4 c.c. of water, which makes a suspension, the pelvis is injected and the fluid allowed to drain out. If you get a growth of Bulgarian bacilli in the pelvis you get relief which nothing else will give. Some patients have had a chill, but many have no reaction. One patient who was treated for three months by other forms of lavage had a very marked reaction, following the treatment, but never had a return of pus in the urine.

DR. VINCENT J. O'CONOR, Chicago: There seems to have been considerable misunderstanding of the interpretation of this work. I do not feel that the work is contradictory to the clinical use of silver nitrate. I simply offered it for what it is worth, hoping to point out how the various drugs get to the pelvis, if at all, how the tissues react and, if possible, how often these drugs should be introduced into the pelvis. In regard to tying the ureters, I do not think that makes any difference, for I know that in no instance did I overdistend the dog's renal pelvis. But it makes no difference, so far as I can see, from the point of view of compression, whether the solution is kept constantly running in to keep up the normal capacity, or whether you introduce this amount at once and put a clip over the ureter.

In regard to the silver nitrate solution, I feel that unquestionably the way it produces its good results is that after two days there is a marked round-cell infiltration which will persist in certain parts of the ureter for ten days. In the other preparations (mercurochrome and aluminum acetate, etc.) there was never any round-cell infiltration. My final summary in regard to this work was not to decry silver nitrate, but to feel that the use of silver nitrate too frequently, because of its destructive effects, might not give us as good results as if we first lave the pelvis and wait for the healing to take place, because if we lave every four or five days we are keeping up the irritating factor. The organisms have been repeatedly found in the mucosa and submucosa, so their accessibility to drugs is somewhat difficult. If by combining these methods of lavage, getting to the deeper structures with mercurochrome and then supplementing that with what we know causes a much greater destruction, silver nitrate, may not the results be better? I simply ask from an experimental point of view whether some of you will not try the combined use of such a drug as mercurochrome, alternated with a drug like silver nitrate.

Maternity Hospitals.—Maternity hospitals call for much the same procedures and practically the same problems as do the general hospital so far as the executive, financial and general administrative affairs are concerned; but when you undertake to analyze its special functions as related to science and its place in the community, then it looms large as a specialty and requires its own special machinery. It is most gratifying to note the signs of awakening in the public mind to the need of using every means to preserve and conserve human life, and the opportunity of the maternity hospital was never before so great as it is today. Such a hospital that can claim nothing beyond giving suitable care in confinement is falling far short of the purpose it could and should serve. A maternity hospital should represent in its community a stronghold from which emanates the strongest possible standards and practices involved in child bearing and child life; and it is just here that the administration of such a hospital begins to take on aspects not so applicable to the general hospital.—N. E. Cadmus and M. LeJeune, *Hospital Social Service* **3**:349 (May) 1921.

REPORT OF A CASE OF HEPATO-DUODENOSTOMY

WITH SOME OBSERVATIONS ON THE LYON-MELTZER METHOD OF BILIARY DRAINAGE

ARTHUR D. DUNN, M.D.
AND
KARL CONNELL, M.D.
OMAHA

The case of Mrs. F. E. S. is worthy of record, not only because of the surgical course but more especially because of the unique opportunity afforded for the elucidation of certain phenomena in biliary secretion. Certain aspects of the secretion and passage of bile have of late assumed unwonted importance, empiric methods of diagnosis have been formulated from clinical observations which were of necessity somewhat loosely controlled, and a new method of therapy, "nonsurgical biliary drainage" has come into vogue.

REPORT OF CASE

Mrs. F. E. S., aged 31, married, came under our observation, April 27, 1920. She stated that four months prior, a cholecystectomy had been performed; that about two weeks after the cessation of drainage from the gallbladder operation, her right side began to feel swollen and sore, and that she suffered attacks of pain, chills and fever, with vomiting and jaundice.

The patient was poorly nourished, sallow and anemic, with slight icterus. Examination of the head, neck, mouth, throat, heart, lungs, pelvis, extremities and central nervous system revealed nothing abnormal. The abdomen was diffusely tender. Tenderness, however, was most marked in the right upper quadrant, where it was associated with some rigidity. A rather hard, tender mass, the surface of which measured about 10 by 15 cm., was palpable under the upper right rectus muscle.

The urine examination was negative, except for the presence of bile; the stomach contents had a total acidity of 70, free hydrochloric acid, 48. The examination of the stool was negative. The blood count revealed: hemoglobin, 75 per cent.; red cells, 3,920,000; leukocytes, 8,000; polymorphonuclears, 70 per cent. The Wassermann test was negative. A roentgenologic examination of the gastro-intestinal tract revealed nothing of importance save an imperfect duodenal cap and evidence of adhesions in the pyloric and gallbladder regions. On account of the repeated attacks of vomiting, chills and fever, and a palpable inflammatory mass, it was decided to explore with the presumptive diagnosis of a localized chronic inflammatory process in the region of the extirpated gallbladder with a possible stone in the common duct.

SURGICAL COURSE AND COMMENT

The surgical course of this patient seems worthy of record on the following counts: (1) to illuminate the surgical complications that may arise from loss of the common bile duct; (2) to illustrate the difficulties and fallacies of the rubber T tube as an anastomosing agent; (3) to record a failure of skin graft by the pedicle method to reestablish the common bile duct; (4) to illustrate the possibilities of sectioning the liver substance as an emergency method to secure bile drainage; (5) to show that repeated and severe surgical insults under desperate conditions may be borne under nitrous oxid-oxygen anesthesia with supplemental minimal quantities of ether, which insult would seem to have been fatal under ether alone, and (6) to record successful anastomosis of the duodenum to the hepatic duct furnishing a subject for controllable study of bile flow, a subject without gallbladder, without common bile duct, with shrunken hepatic ducts, and with an abdominal fistula that afforded direct access to the duodenal pool.

The first of our series of fourteen operations revealed an abscess between the under surface of the liver and the duo-

denum. This abscess cavity communicated below by fistula with the duodenum, and from another fistula leading into a mass of inflammatory tissue on the under surface of the liver, bile flowed into the abscess cavity. We assumed that this second fistula represented the open end of the cystic duct, not at that time knowing that the common bile duct was deficient. The sepsis and jaundice disappeared, following drainage, but bile flow came entirely through the abdominal fistula. After two months, the abdominal fistula tended to choke, and the patient suffered first with pains over the liver and a few days later with chills and fever to 104. She was therefore again opened.

The second operation showed that there was an absence of 1½ inches of common bile duct. The duodenal end was readily picked up behind the second portion of the duodenum, but the proximal end could not be found. A small bile sac was encountered in a mass of scar tissue on the under surface of the liver, and this was drained by a rubber T tube into the residual sector of the common duct. For two months the T tube functioned well, and stercobilin was abundant in the stools. The tube then began to block proximally and to slip out of the bile sac, necessitating repeated replacements through a series of six operative procedures extending over a period of three months. At these replacements, it was seen that there was no epithelization that might lead to reconstruction of the common duct, and, as the replacements were progressively becoming more difficult, a pedunculated skin graft was taken from the left hypochondrium with the pedicle in the epigastrium. This graft was fashioned as a caterpillar with one end attached. After one month of circulatory readjustment, the free end of the graft was opened like a fan and swung into contact with the now shrunken liver ducts above and the common duct below. External bile drainare continued for a month, and a considerable amount of bile found its way into the intestine. After fourteen days of attachment, the skin graft was gradually severed from its pedicle and allowed to retreat within the abdomen. A month later, bile stoppage again became absolute, and sepsis and jaundice serious. Exploration disclosed no vestige of the skin graft, all having sloughed or been absorbed. A dense mass of scar tissue was encountered in which the bile passage could not be found. As the patient became moribund, making further dissection impossible, the free edge of the liver was lopped off as the last chance of reestablishing bile drainage. Hemorrhage necessitated a whipover to secure hemostasis. After a stormy two days, bile drainage became profuse from the free edge of the liver, and the sepsis and icterus subsided. It is of interest to note that a large rent in the duodenum unsutured on account of the collapse of the patient healed rapidly without any apparent effect on the convalescence. After three weeks of drainage the liver surface scarred in, bile flow ceased, and sepsis with jaundice recurred.

Three subsequent attempts were made to reach the hepatic ducts, but each time on dissecting beneath the liver, the patient became moribund, necessitating artificial respiration by oxygen insufflation and cardiac massage, followed by intravenous digitalis and glucose medication. Each attempt resulted only in reestablishing bile drainage from the denuded liver edge. A few days after the last of these efforts, the field beneath the liver was freed and packed with petrolatum gauze, preparatory to an attempt at hepatoduodenostomy. Six days later, after hard search, a shrunken hepatic duct was found to the right of the incisura of the liver. The duct was slit longitudinally to a distance of one-half inch, and a tongue of duodenal mucosa was anastomosed to duct mucosa three fourths the way around the slit, which was spread and held open by suture to Glisson's capsule. The hole in the duodenum from which the tongue was lifted was then sutured as a catch basin about 1 inch in diameter, to the under surface of the liver, completing a hepatoduodenostomy after the Mayo method. This anastomosis was completely successful in reestablishing bile flow. Bile appeared in three days, and the anastomosis has continued to function up to the present, five months later. In dissecting free the duodenum, a fistula was established for duodenal feeding, of which incidental use has been made for studies in biliary secretion.

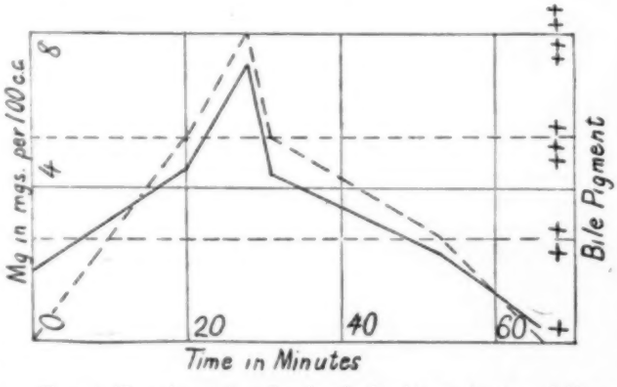


Chart 1 (Experiment 4).—One hundred cubic centimeters of 30 per cent. magnesium sulphate injected, 32 cm. into jejunum at 0 minutes. Bile samples collected from duodenum through fistula. Continuous line, magnesium; broken line, bile pigment.

EXPERIMENTS IN BILIARY SECRETION

A succession of operative procedures had furnished us with a patient with known absence of gallbladder and common bile duct, and in whom the hepatic duct had been anastomosed to the duodenum. For the purpose of feeding, a catheter had been so placed that it led through a fistula into that duodenal recess into which the liver poured its secretions. The patient had kindly consented to leave this catheter in place for experimental purposes. The patient's digestion was good and she felt well during the entire period in which biliary studies were made. During part of the time she was even able to carry on household duties. It is obvious that such an anatomic combination afforded an opportunity to test under exceptional control the Lyon[1] hypothesis of segregation of bile, namely: Under the action of a concentrated solution of magnesium sulphate placed in the duodenum,[2] a sequential flow of bile is obtained: first, a pale yellow bile (A bile) which the hypothesis assumes comes from the common duct; second, a darker, more viscid flow (B bile) of which Lyon says, "It is my personal belief [Lyon elaborates five grounds for his 'belief'] that it is coming from the gallbladder wholly or in part but mixed, probably with a few milliliters of bile still delivered from the ducts or bile freshly secreted from the liver"; third, a clear yellow bile of low specific gravity (C bile) assumed to be freshly secreted liver bile. On this hypothetic differentiation of bile flow into duct, gallbladder and liver bile, Lyon and his followers have elaborated a scheme for the diagnosis and treatment of biliary disease. Variations of bile in color, quantity and consistency, in cytology, in bacterial and crystalline content, have been translated into terms of morbid physiology. As the Lyon-Meltzer concept rests on variations in the physical state of the bile obtained after the introduction of a hypertonic solution of magnesium sulphate into the duodenum, any light that might be thrown on the physiologic effect of such solutions on the liver alone should be of value. In order to ascertain what sequence in bile flow would

1. Lyon, B. B. V.: Am. J. M. Sc. **160**: 522 (Oct.) 1920.

2. It was hard to conceive what alteration might occur in a simple magnesium sulphate solution in its passage over the gastric mucosa that would prevent its having the same effect on the duodenum and biliary apparatus as when introduced directly into the duodenum by tube. We learned early in our work with the Lyon-Meltzer method that it was not necessary that the magnesium sulphate solution be placed directly in the duodenum through the tube as universally advocated, in order to obtain the A B C sequence of bile flow. We have obtained A B C sequences typical both as to quality and quantity, in more than fifty instances by the following method: The duodenal bucket was introduced into the duodenum in the usual manner; the patient then swallowed from 75 to 100 c.c. of 30 per cent. magnesium sulphate solution; after a brief time the bile flow usually occurred in the same manner as when the magnesium sulphate was introduced directly into the duodenum by tube.

occur from a biliary system devoid of gallbladder and common duct and without a functioning sphincter of Oddi to be relaxed, when acted on by a magnesium sulphate solution, the following experiments were performed:

EXPERIMENT 1.—Eight days after the hepatoduodenostomy, 50 c.c. of 30 per cent. solution of magnesium sulphate was introduced directly into the duodenum through the duodenal fistula by the "feeding catheter." In the first seven minutes, 12 c.c. of pale, turbid bile was secreted (A bile). In the following thirty-five minutes, 30 c.c. of dark, greenish-yellow, turbid, viscid bile was secreted (B bile). In the next hour, 192 c.c. of light, clear yellow bile, with a specific gravity of 1.012, was obtained (C bile). This experiment proves that the typical A B C sequence can be obtained by introducing 30 per cent. magnesium sulphate directly into the duodenum without the presence of either gallbladder or common duct. (It was clearly demonstrated at operation that there was no dilatation of the hepatic ducts which might possibly function similarly to a gallbladder in the concentration of bile.)

EXPERIMENT 2.—At the same hour the next morning, prior to the ingestion of food, and without magnesium sulphate injection, the bile was collected in fractions for two hours through the duodenal catheter. In total, 190 c.c. of pale yellow bile of uniform color and consistency was obtained, all fractions alike, except that some were acid and turbid from admixture of stomach secretions.

EXPERIMENT 3.—Three hundred cubic centimeters of 30 per cent. magnesium sulphate solution was introduced into the colon by rectum. The collected bile corresponded essentially to that of Experiment 2.

EXPERIMENT 4.—A catheter was passed 32 cm. through the duodenal fistula into the jejunum, and its position verified by the fluoroscope and by plates. One hundred cubic centimeters of 30 per cent. magnesium sulphate solution was injected into the jejunum, and the catheter was washed with physiologic sodium chlorid solution. It was then withdrawn, cleansed and reinserted into the duodenal pool to collect bile. The results of the experiment are shown in Table 1.

Chart 1 shows quantitative magnesium and bile pigment curves plotted against time for Experiment 4.

This and other experiments made with the same technic showed that in a case without gallbladder or common duct, the A B C sequence could be obtained by injecting 30 per cent. magnesium sulphate solution into the jejunum at a point 32 cm. distant from the second portion of the duodenum.

TABLE 1.—RESULTS OF EXPERIMENT 4

Sample Number	Time in Minutes	Amount of Bile Obtained, in C.c.	Color	Lyon's Class	Specific Gravity	Magnesium in Mg. per 100 C.c.	Bile Pigment
1	0	15	Yellow	A	1.015	0.9	+
	Magnesium sulphate introduced into the jejunum						
2	10	22	Brown	B*	1.040	1.3	++
3	20	21	Brown	B	1.026	4.5	+++
4	28	43	Dark brown	B	1.023	7.2	++++
5	31	23	Dark yellow	B	1.012	4.2	+++
6	56	17	Yellow	C	1.015	2.27	++
7	66	17	Yellow	C	1.020	0.4	+

* In this experiment, the A fraction is not shown after the magnesium sulphate injection. It is obvious that, in the absence of common duct and with shrunken hepatic ducts in which but little bile can accumulate prior to the injection of magnesium sulphate, the A fraction may be easily lost in an initial gush of bile. This occurred frequently in our work in this case.

EXPERIMENT 5.—The same technic was employed as in Experiment 4, except that consecutive instillations of magnesium sulphate into the jejunum were made. The results of this experiment are shown in Table 2.

Chart 2 is a graph of quantitative estimates of magnesium and bile pigment plotted against time for Experiment 5.

This experiment showed that consecutive sequences of A B C bile could be obtained by introducing a 30 per cent. solution of magnesium sulphate in two fractions into the jejunum of a patient without gallbladder or common duct.

TABLE 2.—RESULTS OF EXPERIMENT 5

Sample Number	Time in Minutes	Amount of Bile Obtained in C.c.	Color	Lyon's Class	Magnesium in Mg. per 100 C.c.	Bile Pigment
75 c.c. of 30% magnesium sulphate was introduced into the jejunum						
1	5	10	Light yellow	A	1.0	+
2	13	8	Dark yellow	B	11.1	++
3	26	20	Dark brown	B	2.5	++++
4	28	8	Light yellow	C	0.7	+
50 c.c. of 30% magnesium sulphate introduced 32 cm. into jejunum						
5	37	10	Light yellow	A	6.0	++
6	42	10	Dark brown	B	0.8	+++
7	50	25	Light yellow	C	0.6	+

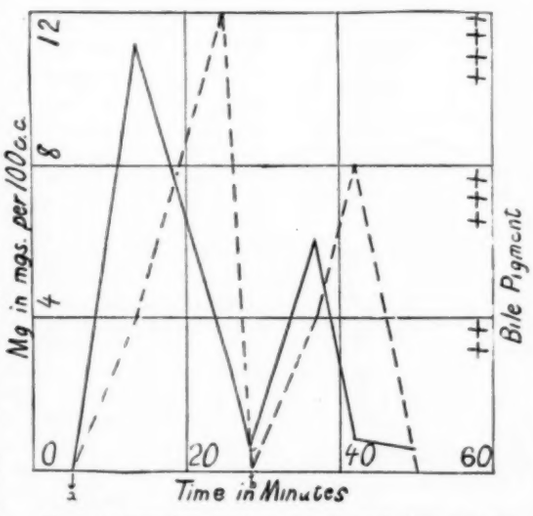


Chart 2 (Experiment 5).—*a* and *b* mark time of injection of 75 and 50 c.c. of 30 per cent. magnesium sulphate, respectively, 32 cm. into jejunum. Samples collected from duodenum through fistula. Continuous line, magnesium; broken line, bile pigment.

Chemical studies made for us by Prof. J. T. Myers, by courtesy of the University of Nebraska College of Medicine, gave some interesting data for study. Charts 1 and 2 are graphs of the analyses for magnesium and bile pigments in the series of samples obtained in Experiments 4 and 5. These analyses were controlled by other series of samples obtained from the same patient by the same methods. Since variations in pigment values and in concentration of bile are the basis of the A B C differentiation, and since it has been customary for workers to interpret the change in intensity of pigment in the bile flow as change from common duct bile to gallbladder bile and from gallbladder bile to liver bile, efforts were made to determine the chemistry of these color changes. The variations in color were found to be not due to iron sulphid. Lead acetate paper was not discolored, and the Prussian blue and thiocyanate tests for iron were negative. The color was found to vary only with the concentration of bile pigment. When concentrated nitric acid was added to the darker biles, a much deeper play of colors was produced than when added to the paler biles. Other oxidizing agents, such as hydrogen peroxid and potassium dichromate, produced similar results. The color changes were, of course, due to the oxidation of bilirubin to biliverdin, bilifuscin, biliprasin, choleprasin, bilihumin and bilicyanin, etc.[3] The approximate concentrations of bile pigment were obtained by observing the intensity of color reaction, namely, greens, purples, blues and browns, produced by the addition of nitric acid. The following technic was used: One cubic centimeter of bile from each sample of a series was placed in a series of small test tubes. An equal volume of concentrated nitric acid was added to each tube. The pigment values were read "one, two, three or four plus," according to the depth of the colors. Several quantitative estimations showed the cholesterol curves to follow rather closely the curves of the bile pigments.

3. Wells: Chemical Pathology, Ed. 3, p. 484.

It is to be noted in the accompanying charts that the pigment curves correspond closely in form and in time to the curves of the concentrations of magnesium. It does not seem likely that regurgitation of magnesium sulphate from the jejunum into the duodenum would give such minimal but constant variations in concentrations of magnesium as were found in the bile samples. Quantitative sulphate determinations showed that the gram-molecular concentrations of SO_4 did not follow those of Mg in the proportion of $MgSO_4$, proving that at least some of the magnesium occurred in another form of bile. Furthermore, no regurgitation of milk occurred when 1 quart of milk was introduced 32 cm. into the jejunum. These facts negate the possibility of regurgitated magnesium sulphate as an explanation for the curves of magnesium in the bile samples. It would seem far from likely that the small concentration of magnesium sulphate (2 to 55 mg. per hundred cubic centimeters), as calculated from the magnesium content of the bile samples, could act on the duodenal mucosa to produce bile flow in the manner set forth in the Lyon-Meltzer hypothesis. The method used for the determination of magnesium in bile was as follows: Ten cubic centimeters of bile was measured into a porcelain evaporating dish with a calibrated pipet, and 5 c.c. of concentrated nitric acid added to oxidize the organic matter. The sample was evaporated to dryness on the water bath and heated over a Bunsen flame till all carbon was removed. The residue was taken up with distilled water containing a little hydrochloric acid. This solution was made slightly alkaline with ammonium oxalate added, and the liquid filtered to remove possible traces of calcium or iron. The magnesium was precipitated with sodium ammonium phosphate. After several hours of warm digestion, the precipitate was filtered off, ignited in a porcelain crucible, and weighed as magnesium pyrophosphate, $Mg_2P_2O_7$. The quantities of magnesium and magnesium sulphate given above were calculated from this. Quantitative precautions were used throughout.

The close parallelism of the magnesium and bile pigment curves suggests quite naturally that we are dealing with an intestinal absorption of magnesium. Our work does not of necessity come into conflict with current pharmacologic views that magnesium sulphate is not absorbed from the intestine. As far as we have been able to ascertain from the literature, the conception of nonabsorption of magnesium sulphate from the intestine is based on the results of coarser methods which respond to much larger quantities of magnesium than those prevailing in our studies.

May not one of the following possibilities be the answer to the A B C phenomenon: first, an enterohepatic circulation of magnesium in which the latter, carried to the liver in the portal blood, acts directly on the liver as a cholagogue, *producing a bile flow rich in pigment*, or, second, a destruction of red corpuscles, possibly by the magnesium ion, somewhere in the portal system, resulting in sudden dumping of an increased quantity of blood pigment on the liver, which reacts to this stimulus by an increased output of bile rich in pigment? Work along these lines is contemplated.

CONCLUSION

Experiments carried out on a patient without gallbladder or common duct have shown that the assumption is not necessarily true that the B, or dark, viscid fraction of the A B C magnesium sulphate bile sequence represents gallbladder bile, and that we are not yet justified in localizing disease of the biliary tract on evidence afforded by the Lyon-Meltzer method of bile segregation.

Our limited observations indicate that the A B C bile flow sequences obtained in this case were due to the reaction of the liver to the presence of magnesium in the portal blood.

808 Brandeis Theater Building.

NEW METHOD OF PREVENTING POST-OPERATIVE INTRA-OCULAR INFECTIONS

REPORT OF FOUR HUNDRED SUCCESSFUL CASES *

GEORGE HUSTON BELL, M.D
Attending Ophthalmic Surgeon, New York Eye and Ear Infirmary
NEW YORK

The material herewith presented is the result of 400 intra-ocular operations without a single primary infection. If we can now approach the operating table with a feeling of confidence that we have not had in the past, I believe that a great load has been lifted from the shoulders of most ophthalmic surgeons.

How often have you witnessed an infection following intra-ocular operations? Unfortunately, this calamity has overtaken us all. How often have you been told by the bacteriologist that the smear from the conjunctival sac was dirty and how often have you waited for days for the smear to become negative before operating? You then operate and dress the eye with fear and trembling, forty-eight hours afterward. Again, we have been told by the bacteriologist that the smear was negative; we operate, and in forty-eight hours, we dress the eye and find an infection—that I believe has also happened to us all.

In no case of our 400 did we wait for a single day before operating to clean up whatever was found in the smear from the conjunctival culdesac.

Much valuable time is lost by trying to clean up the conjunctiva when there is a questionable smear. The time that is lost is due to inadequacy of hospital facilities and also to patients. According to my method we do away with all this "lost motion." If a patient's eye looks clinically clean, we go ahead and operate regardless of the findings in the smear. The so-called "senile catarrhs" are not looked upon as clinically unclean by us. In other words, we pay no attention to the findings of the bacteriologist.

I have such a strong faith in my method of treatment that I am anxious for all ophthalmic surgeons to give it a trial unless they have some better plan of procedure.

TECHNIC

First Step.—The focal infections, such as oral sepsis, diseased tonsils, and toxemias of the intestinal tract, must be removed. I hold that it is just as necessary for the ophthalmic surgeon to get his house in order before subjecting his patient to a major operation upon the eye as it is for the general surgeon to clean house. Every patient of mine, whether clinical or private, must stand the acid test for "the three T's" (teeth, tonsils and toxemia), before we will consider the operation. This routine is carried on in my clinic at the Infirmary, and also in my private practice. I said at Atlantic

* Read before the Section on Ophthalmology at the Seventy-Second Annual Session of The American Medical Association, Boston, June, 1921

City at the A. M. A. session that "a dirty mouth" was one of the greatest menaces to the human race. I wish now to reaffirm and confirm that statement. We must make no mistake about oral sepsis, as it is the arch enemy of the ophthalmic surgeon. The germs themselves and toxins or their poisonous products must be eliminated from the system as far as lies in our power if we are to better our cataract results. In this way we can hope to reduce the amount of secondary post operative infections. If we clean the blood by getting rid of toxemia, then we will raise the resistance of our patients so that we may be able to approach the operation with a confidence and courage such as we have not had in the past. We must bear in mind that the longer toxemia exists the less nerve energy and resistance there is.

All of this work on focal infections must be done from two to three months before the patient is admitted to the hospital. I lay great stress on this work, as we must study the general state of patients more than we have done in the past. A Wassermann test is made in zonular and complicated cataracts; also in hard cataracts when necessary.

The urine is examined several times previous to the operation.

Second Step.—The patient is then admitted to the hospital. Twenty-four hours before the operation, a dose of castor oil is given, as nothing sweeps and cleans the intestinal tract like castor oil. Castor oil has been the standby of physicians since time immemorial. I know of no substitute for it.

Third Step.—Two hours before the operation, a smear of the conjunctival sac is taken, after which 2 drops of 1 per cent. solution of silver nitrate are instilled into each eye.

The silver produces an intense irritation, but not an inflammation, so that when the patient comes to the operating table the eyes look red and inflamed, with a certain amount of mucous at the inner corners. The eyes are then washed out with a normal salt solution, as a means of freeing the operating field of mucus, dust, etc. After the patient is well under the local anesthesia, the operation is performed. We always try to get a conjunctival flap. Our usual technic is then employed. Afterward we use 2 drops of 3 per cent. solution of atropin and 25 per cent. solution of argyrol, after which both eyes are bandaged for forty-eight hours. Then every two days, the eye is dressed and argyrol and atropin instilled.

ACTION OF SILVER NITRATE

I believe that silver nitrate furnishes a marked degree of stimulation to the conjunctiva, and in that way leukocytosis is produced and protective substances are formed which take care of the micro-organisms if any are present.

Even were an inflammation produced by the silver, which I do not think happens, it would only diminish the probability of infection, not increase it, because the leukocytes and their leukins are valuable means in battling bacteria.

Mr. Burchell, our bacteriologist at the infirmary, performed some experiments for me with the secretion from the conjunctival sac after the silver had been instilled. He made an emulsion of the secretion and submitted it to different strains of staphylococci for periods ranging from one to twenty-four hours with negative results.

Mr. Burchell's investigations lead him to believe that the good effects of the silver are not due to the bactericidal properties of the secretion; but that the silver acts as an irritant to the tissues, causing the accumulation of leukocytes in the blood vessels which produces diapedesis, thereby leaving the operating field protected from any micro-organisms. In other words, we leave the eye protected by means of the phagocytes. And what makes the phagocytes so active? It is the preoperative removal of foci of infection—going after "the three T's."

The accompanying table is a condensed record of the operations performed. The records of these cases can be more fully studied, if desired, at the New York Eye and Ear Infirmary.

OPERATIONS PERFORMED IN FOUR HUNDRED CASES OF INTRA-OCULAR DISEASE

Case	Diagnosis	Smear	Operation
2	Chronic glaucoma	Pus, mucus, large diplococci	Lagrange
64	Immature and mature senile cataracts	Negative	Prelim. iridectomy
20	Matured senile cataracts	Mucus, leukocytes, large diplococci	Prelim. iridectomy
34	Glaucoma	Negative	Iridectomy
7	Acute glaucoma	Pus, pneumococci, mucus	Iridectomy
7	Old iritis	Mucus, leukocytes, no bacteria	Iridectomy
12	Chronic glaucoma	Negative	Lagrange
2	High myopia	Negative	Discission
3	Chronic glaucoma	Pus cells, mucus	Trephine
6	Capsular cataract	Occasional diplococci.	De Wecker's
5	Secondary cataract	Pus Cells, mucus, bacteria	De Wecker's
2	Postpolar cataract	Mixed germs, diplococci	Discission
2	Postpolar cataract	Negative	Discission
7	Zonular cataract	Negative	Discission
5	Zonular cataract	Pus cells, mucus, bacteria	Discission
22	Secondary cataracts	Negative	Discission
12	Secondary cataracts	Mucus, leukocytes	Discission
1	Foreign body in anterior chamber	Mucus, leukocytes	Extraction of steel
1	Buphthalmia	Leukocytes, large diplococci	Iridectomy
14	Traumatic cataracts	Negative	Linear extraction
1	Traumatic cataract	Leukocytes, cocci	Linear extraction
2	Traumatic cataract	Small, large diplococci	Linear extraction
3	Zonular cataracts	Negative	Linear extraction
60	Mature senile cataracts.	Negative	Extraction
5	Mature senile cataracts.	Pus cells, no bacteria	Extraction
10	Mature senile cataracts.	Leukocytes, occasional coccus	Extraction
5	Mature senile cataracts.	Mucus, bacteria, leukocytes	Extraction
3	Mature senile cataracts.	Epithelium, pseudo-"K.L.B."	Extraction
10	Mature senile cataracts.	Much mucus, no bacteria	Extraction
8	Mature senile cataracts.	Mucus, diplococci, pus cells	Extraction
5	Mature senile cataracts.	Leukocytes, no bacteria	Extraction
5	Mature senile cataracts.	Mucus, staphylococci.	Extraction
5	Mature senile cataracts.	Mucus, leukocytes, no bacteria	Extraction
4	Mature senile cataracts.	Pus, pneumococci, mucus	Extraction
4	Mature senile cataracts.	Mucus, few cocci, no pus	Extraction
5	Mature senile cataracts.	Leukocytes, large and small diplococci	Extraction
4	Mature senile cataracts.	Pus, mucus, leukocytes	Extraction
9	Mature senile cataracts.	Mucus, large and small diplococci	Extraction
12	Dislocated lens	Mucus, leukocytes, bacteria	Extraction
12	Complicated cataract	Pus cells, mucus, bacteria	Extraction

SUMMARY

If we are to better our cataract results and have fewer post-operative infections, we must start at the bottom and not at the top. It is just as necessary for the ophthalmic surgeon to clean house as it is for the general surgeon.

1. The arch enemy of the ophthalmic surgeon is oral sepsis. Patients must stand the acid test for focal infections, "the three T's," before we will consider the operation. This applies to all patients except emergency cases.

2. I wish to express a strong faith in silver nitrate as a germicide and irritant. In all of these 400 cases, 1 per cent. silver nitrate was instilled into the eye two hours before the operation and 25 per cent. solution of argyrol used at the time of operation.

3. If a patient's eye looks clinically clean we operate. The so-called "senile catarrhs" are not looked upon as clinically unclean by us. We pay no attention to the findings of the bacteriologist.

4. In analyzing our 400 cases, we have had two secondary infections coming on nine days after the operation. One of these patients recovered and will have some vision; the other developed a chronic iridocyclitis. These patients had negative smears. We were able to trace these infections to faulty technic in reference to oral sepsis.

5. Cases 1 and 2 were the same patient. His smear showed pus and diplococci, mucus; also he had chronic dacryocystitis. The patient had chronic glaucoma with very little vision. I performed a Lagrange operation without bringing the tension down; in two weeks, another Lagrange operation was performed. No infection followed either of these operations. Dr. Stout was house surgeon at that time and assisted me.

6. Vitreous humor was lost in four cataract cases. In Case 55 a bead of vitreous humor appeared. The smear contained pus and a number of diplococci. No infection resulted. Case 67 was a bad case of ozena; a smear showed pus cells and staphylococci. There was no infection. An iridectomy was performed in Case 80, after which a secondary membrane was removed. Some vitreous was lost. A smear showed considerable mucus and a few leukocytes and an occasional diplococci. There was no infection. In Case 91, an iridectomy and capsulectomy were performed. Vitreous was lost; the smear was negative and no infection resulted. Case 118 presented a dislocated lens. Iridectomy and extraction of the lens were performed; considerable vitreous was lost in this case. A smear showed a few leukocytes and some bacteria. No infection resulted. In Case 179, there was a thick secondary membrane. De Wecker's method was employed. Some vitreous was lost. Smear showed pus cells and staphylococci. No infection resulted. In Case 299, there was ozena. A smear showed leukocytes and large diplococci. No infection resulted. In Case 397, the patient squeezed, and lost considerable vitreous. The smear was negative. No infection resulted.

7. In soft or lamella cataracts, I perform a peripheral linear incision with a flap just back of the limbus. Also in all discissions, I enter the anterior chamber through the conjunctiva and sclera, just back of the limbus. The same rule applies to hard cataracts. I make the section in the sclera just behind the limbus, always having in mind a conjunctival flap. I consider it obsolete to go through the cornea in performing discissions, soft or hard cataracts.

8. In our list of 400 cases, we operated upon 142 mature senile cataracts and twenty soft cataracts, making all told 162 cataracts removed, with one eye lost from a secondary infection. Not a single case of primary infection or panophthalmitis resulted.

We performed fifty discissions on soft and secondary cataracts, 132 iridectomies, fourteen Lagrange operations, eleven de Wecker operations, three trephines and twenty-eight miscellaneous operations without an infection.

It is interesting to note that the ages of our patients ranged from 2 months to 90 years. Two of our patients with cataract had 3 per cent. sugar in the urine. Sugar is no barrier to the operation unless it exceeds 4 per cent.

As regards the whole question of postoperative intra-ocular infections I believe that the technic that I employ is absolutely reliable if it is followed to the letter of the law.

40 East Forty-First Street.

ABSTRACT OF DISCUSSION

Dr. Walter Eyre Lambert, New York: When Dr. Bell first called my attention to this method I was rather skeptical about it. It did not impress me at all. The reaction produced by the silver nitrate made a very unattractive looking eye on which to operate; however, as Dr. Bell was undoubtedly having most satisfactory experience with the method, I was induced to try it and the procedure, so far as the use of the silver nitrate is concerned, has been made a routine practice in my clinic. We have a record in my clinic of about 200 operations—75 cataracts, 29 discissions, 75 iridectomies, 10 trephinings, 5 Lagranges and 6 de Weckers—in which the preventive method described by Dr. Bell was used, and in none of these cases has any sign of infection occurred. It would seem, therefore, that we have a certain amount of evidence that it is a most useful method. It is my intention to continue the method of Dr. Bell. Perhaps, with a larger experience, we may be able to draw some positive conclusions. At present, however, it is rather hazardous to consider it as absolutely infallible.

Dr. J. A. Donovan, Butte, Mont.: If Dr. Bell's results so far published are proved by further experience to maintain his position, we certainly have a very valuable addition to our operative work. However, I am a bit skeptical. Several times I have said something about the use of a mercury ointment in these operations, particularly red mercuric iodid, and have reported the strength as 1 : 5,000. I have increased the strength to 1 : 1,000, mixed with a little potassium iodid dissolved in water, and then incorporated in anhydrous wool fat, and finally add the petrolatum. I depend on it a little more than on anything else, and my results have usually been very satisfactory. I use it in routine office work, and after every eye operation. Though it does not in the least irritate an eye just operated on, it is frequently quite irritating to a normal eye or, in some cases, after prolonged use, but not so if its use is stopped for about three days, and then resumed.

Dr. Frederick H. Verhoeff, Boston: It is difficult to draw definite conclusions in regard to infection because it occurs so seldom. The method of preparation I have used for about five years is this: I do not prepare the patient's eye before operation at all, except to clip the eyelashes, because I think it is a mistake to irritate the eye before operation. At the time of operation the first procedure is to paint the skin with 2 per cent. tincture of iodin, and, as I use a suture, this is very important in avoiding infection of the suture. I paint practically the whole face on both sides; then we pay special attention to rubbing the iodin on the eyelashes and lid margins. In addition, for about two years we have put a gauze mask, similar to that the surgeon uses, over the patient's nose and mouth so that we may have an almost completely sterile field. Then I try to sterilize the conjunctival sac by using a 4 per cent. solution of protargol. At first, for about a year, I used 2 per cent. thinking that perhaps the stronger solution would be too irritating, and in that time had one infection in a case of diabetes. Since using 4 per cent. I have been fortunate enough not to have a single infection, not even a late one. Of course, this is the same principle as that of Dr. Bell, the activity of protargol being due to the silver nitrate in it, and 4 per cent. protargol is about as bactericidal as 1 per cent. silver nitrate.

Dr. George H. Bell, New York: I do not think that smears from the conjunctival sac mean anything, provided the eye looks clinically clean. Cultures are also unreliable. Red mercuric iodid is good as far as it goes, but the leukocytosis produced by the mercury salts is not sufficient. I used mercuric chlorid and gave it up for that reason. Protargol acts along the same line as silver nitrate in producing a leukocytosis, but I do not think that it produces such a marked leukocytosis as silver nitrate. Protargol, being one of the salts of silver, is not as efficacious and as irritating as silver nitrate. I know of no substitute for silver nitrate. It is the best bactericide and irritant. Silver nitrate irritates the eye, and that is what I want. The field of the operation in a cataract case can never be considered surgically clean; therefore, it is necessary to use silver nitrate to prevent infection. My method leaves the eye protected during the healing process.

THE REPAIR OF SCLERAL WOUNDS (INCLUDING RUPTURE) NEAR THE LIMBUS*

LEE MASTEN FRANCIS, M.D.
BUFFALO

This paper supplements one read before this Section in 1913, at which time I described a double conjunctival flap for closing wounds of the sclera, situated far enough from the limbus to admit undermining sufficient adjacent conjunctiva to fashion adequate flaps. While this procedure serves its purpose well in proper cases, for those wounds more anteriorly placed, some other method is necessary. Although closure with scleral sutures, in many cases, is quite sufficient, more firmness and security from infection can be gained if such wounds can be reinforced by a proper conjunctival covering. It is with this in mind that the following procedure is presented:

The types of wounds for which this technic is adaptable are: first, scleral ruptures; second, penetrating wounds of the sclera near, and if linear, parallel or nearly parallel to, the limbus, and third, prolapsing cataract wounds.

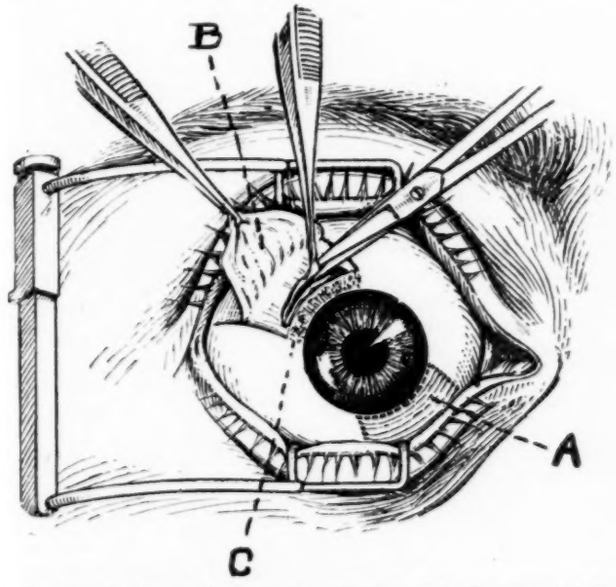


Fig. 1.—*A*, site of flap opposite scleral wound; *B*, equatorial flap, elevated, and *C*, area of conjunctiva roughened. Toilet of scleral wound.

TECHNIC

First Step.—Diametrically across the cornea from the wound, a tongue of conjunctiva is elevated from the sclera, wide enough to admit of several sutures and long enough to readily stretch nearly across the cornea without undue tension (*A*, Fig. 1). This flap is easily undermined with the tips of blunt scissors, and should include subconjunctival tissue to insure proper strength and firmness. This flap having been elevated, its length is tested by stretching across the cornea.

Second Step.—If there is normal conjunctiva between the wound and the limbus, the surface is slightly denuded and roughened by means of a curet or scalpel in order to provide union with the flap which will later cover it (*C*, Fig. 1).

Third Step.—The original wound, through the conjunctiva, is then enlarged several millimeters on either side, parallel to the limbus.

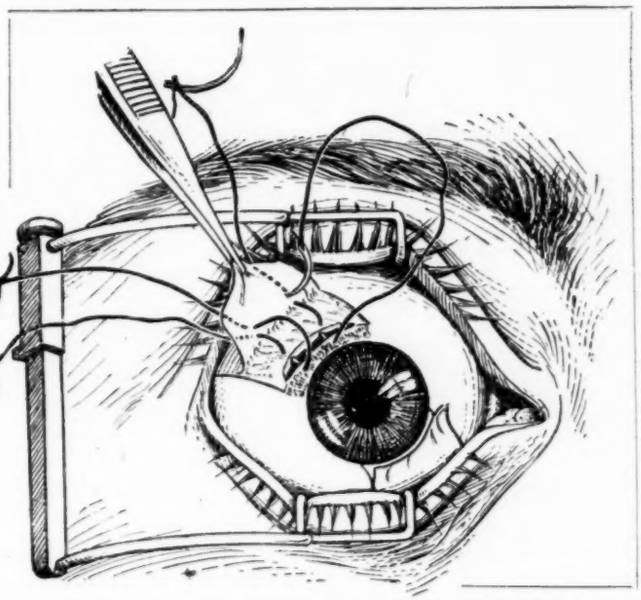


Fig. 2.—Scleral sutures mattressed through equatorial flap.

Fourth Step.—On the equatorial side of the wound, a thick conjunctival flap is undermined, wide enough amply to cover the wound and long enough to meet the flap already fashioned on the opposite side (*B*, Fig. 1). The size and length should be tested before proceeding. If subconjunctival rupture of the sclera is being repaired, the conjunctiva covering the rupture may be utilized in the equatorial flap, if it is of sufficient thickness and not damaged.

Fifth Step.—Débris and loose tags are trimmed away from the scleral wound with sharp scissors, and if need be, the edges are smoothed and freshened (Fig. 1). The wound is then closed by means of fine silk or linen, double armed with sharp cutting needles. Kalt's corneal needles are ideal for this purpose. The sutures should dip firmly into the lips of the scleral wound but not entirely through. Each suture is then mattressed through the equatorial flap at a point where it will cover the wound when it is joined to the opposite flap from across the cornea (Fig. 2).

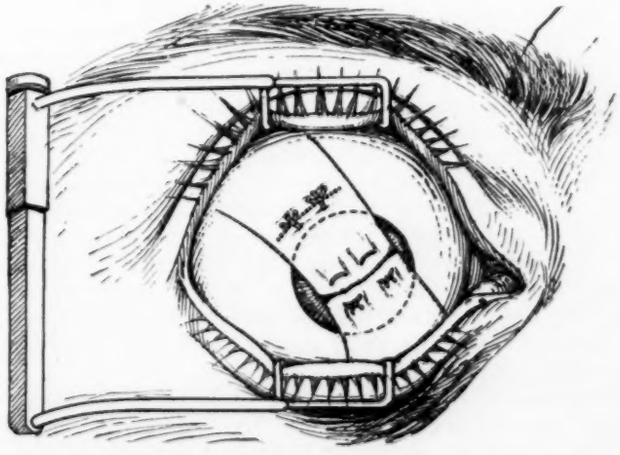


Fig. 3.—Flaps in position; sutures tied.

* Read before the Section on Ophthalmology at the Seventy-Second Annual Session of The American Medical Association, Boston, June, 1921.

Sixth Step.—The two flaps are then united across the cornea by means of firm silk sutures. Mattress sutures are preferred for joining the tongues of conjunctiva because they are less likely to cut out than single sutures. The sutures closing the scleral wound mattressed through the equatorial flap are then tied (Fig. 3). Both eyes are bandaged, and the sutures are removed on the fourth or fifth day, at which time the flaps will retract, leaving the wound sealed.

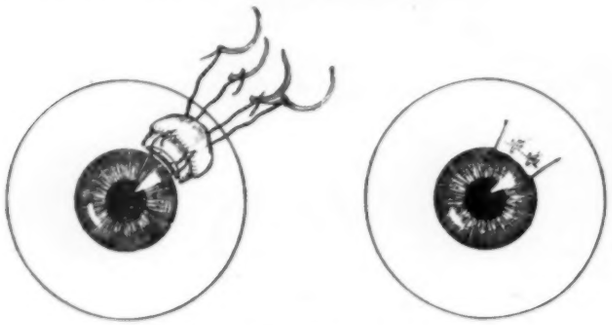


Fig. 4.—Single equatorial flap for small wounds.

For small wounds such as those arising from recent puncture or older fistulating wounds and even small prolapses following cataract, a flap from the opposite side is not necessary. The equatorial flap is sufficient and offers ample protection and strength (Fig. 4). In rupture of the sclera, however, it is deemed best to provide a flap from the opposite side of the cornea.

636 Delaware Avenue.

ABSTRACT OF DISCUSSION

DR. C. D. WESCOTT, Chicago: This is a most ingenious method, and I have no doubt it will be successful in the hands of most of us. I have not used it since reading the paper, but have used the method proposed by Dr. Francis in 1913, and it has been very successful in my hands. At the first opportunity I shall try this new method of closing scleral rupture.

COMPLETE DISCISSION OF THE LENS BY THE V-SHAPED METHOD*

S. LEWIS ZIEGLER, M.D.
PHILADELPHIA

The term discission as it is now employed in ophthalmic literature is somewhat confusing, since it is applied to three different operative procedures: (1) incision of the anterior capsule; (2) incision of the lens cortex, and (3) incision of the posterior capsule for after-cataract. To be precise and accurate in our terminology, the first procedure should be called "anterior capsulotomy" or "cystotomy," since the lens is intact in its capsule or cyst; the second should be designated "discission," and the third should be classed apart as "posterior capsulotomy."

Discission is derived from the Latin word *discidere*, which means "to cut through." Discission of the lens should, therefore, designate a cutting through of the lens in toto, rather than an incision in the anterior capsule, as has been our habit to apply the term during the last century or more. Prior to that time, our ophthalmic progenitors usually applied the term rightly to the cutting up of the lens into fragments, whether the cataract was hard or soft, but sometimes they also applied the term wrongly to incision of the posterior capsule.

Discission is the operation of choice in cases of soft cataract, whether congenital, juvenile, choroidal or traumatic, and also for removal of the lens in high myopia. Many have inveighed against too free discission in such cases, chiefly because of the rapid swelling of the cortex and the serious sequelae arising from acute pressure in the angle against the ciliary body. This swollen cortex may set up cyclitis, iritis, iridocyclitis, iridochoroiditis, panophthalmitis, and acute glaucoma, any one of which might seriously menace the integrity of the eye. The surgeon must, therefore, perform either (*a*) paracentesis (linear extraction) to empty out the swollen lenticular masses, or (*b*) iridectomy to relieve the sudden increase of tension. If the principles laid down in this thesis are accepted, it might be surgically correct to propose a third emergency procedure: (*c*) incision of the posterior capsule, which would thus transfer the pressure of the swollen cortical from the ciliary angle to the vitreous chamber. We have all seen irritable eyes improve after posterior capsulotomy, even though such a serious operative interference was apparently contraindicated.

One of the chief disadvantages of discission as now practiced is the fact that at least three, and often four or more, operations are necessary; the first, a small incision in the anterior capsule; the second, a bolder stirring up of the cortex (sometimes repeated), and the third a posterior capsulotomy. To these, we may add a possible fourth, paracentesis for swollen cortical. As a rule, however, the cortex dissolves so slowly, averaging from three to six months for each eye, that both patient and surgeon become exhausted long before the ultimate result is obtained. The parents, meanwhile, pass through many periods of unnecessary anxiety, delay and expense.

To escape these complications as well as to hasten convalescence, I began some years ago to perform discission by dividing the lens, through and through, after the technic of my V-shaped iridotomy.[1] The analogue that first suggested this method to me came from a study of cases of perforating wound of the eyeball with traumatic cataract. So long as the globe remains open there is freedom from inflammatory complications, but as soon as the globe heals, pain, cyclitis, and ciliary swelling immediately develop. In like manner, so long as the anterior and posterior capsular surfaces of the lens are divided and remain open, solution of the cortex rapidly progresses without pain, inflammation or swelling, but if the anterior capsule is poorly opened, or if it recloses and pockets the cortex, or if the posterior capsule remains intact, then the cortex begins to swell in the angle and to press against the ciliary body, thus causing all the sequelae that usually follow this complication.

OPERATION

First Stage.—Under cocain anesthesia and full mydriasis, the cornea is punctured above with the Ziegler knife-needle turned on the flat. The knife is then rotated, edge downward, the point swung to the left of center, and the lens punctured with a quick thrust at a point as low down as possible, close to the iris margin but high enough to avoid injury to the ciliary body.

Second Stage.—With a sawing movement in line with the axis of the knife, the lens is divided through and through, the incision being carried from below upward as far as possible, but without pressure on the lens or injury to the iris.

* Read before the Section on Ophthalmology at the Seventy-Second Annual Session of The American Medical Association, Boston, June, 1921.

1. Ziegler: History of Iridotomy, Author's V-Shaped Method, J. A. M. A. **52**: 539 (Feb. 13) 1909.

Third Stage.—The knife is then raised up through the rift of the divided lens and swung across the anterior chamber to a corresponding point on the right of center. The lens is again punctured and the incision carried from below upward as before, thus making two converging or V-shaped cuts. Care must be taken to have these converging incisions meet or cross at the apex of the V in order to free the pupillary area from ultimate secondary cataract after the cortex has dissolved.

Fourth Stage.—The knife is then turned on the flat and withdrawn. The corneal puncture is curetted with an iris spatula and touched with 5 per cent. iodine. A very light dressing is applied.

Double fixation with a small horseshoe shaped forceps is preferably employed for restless children. If the head is firmly held by an assistant, the globe is easily controlled.

Preliminary iridectomy is unnecessary but full mydriasis is always required in order to prevent cutting or "nicking" of the iris sphincter. This accident would cause "dimpling" of the pupillary margin. For the same reason, the knife is inserted through the cornea instead of through the sclera. This location also offers a better fulcrum for the sawing movement.

Incising the lens gives one the sensation of cutting cheese with a sharp knife. No pressure should be made on the lens or it may be dislocated. One should cut clear through the lens with a free incision and make a large V. Boldness of incision is a virtue, and conversely, timidity is a vice. Do not *stir up* the cortex or vitreous, but saw in a straight line. Incision of the vitreous is, in itself, not dangerous if you make a clean cut, as witness the analogues of iridotomy, posterior capsulotomy, posterior sclerotomy and magnet extraction. If the iris is adherent to the anterior capsule through posterior synechiae, it may be necessary in making a broad V to puncture the iris tissue and cut through this (together with the lens) until the knife emerges into the pupillary area.

In puncturing the lens below, one should be careful not to injure the ciliary body as cyclitis or acute glaucoma will surely follow. If the eye becomes red or painful, ice compresses will usually give prompt relief.

The freedom from postoperative sequelae is very noticeable. As the capsular sac is freely opened, both anteriorly and posteriorly, the physical pressure of the swollen cortical can be exerted only forward into the anterior chamber or backward into the vitreous chamber, thus freeing the angle from pressure on the ciliary body and avoiding pain and swelling from this cause. The wide wedgelike opening in the lens below encourages free exit of cortex at that point, while both sides of the apex above are quickly freed by the aid of gravity. I have never seen the anterior chamber made shallow by increase of tension, because there is no posterior capsular resistance and no occluded angle.

Occasionally, the nucleus is turned out during the operation and some lens sectors may fall forward into the anterior chamber a few days later. If the cortex in the angle should swell too rapidly, it only pushes itself out from the periphery toward the center and empties into the pupillary area without causing any physical disturbance. In fact, rapid swelling of the cortex is usual, and prompt solution of it soon follows. If any fragments of the nucleus should not dissolve, they can be removed by paracentesis. As a rule, the patient is discharged from the hospital on the third or fourth day, convalescence is complete in one month, and cataract glasses are fitted at the end of that period.

Aside from the satisfaction of this short convalescence, the surgeon enjoys a certain mental comfort in the assurance that the patient, even if living at a distance, need not visit the office more than once or twice a week and that a different variety of "pathologic shock" will not be registered at each inspection of the eye. Instead of the usual aggressive inflammatory reaction, one sees only a uniform negation of symptoms. The tumbling masses of fluffy cortical substance are as placid as falling snowflakes. The patient should be warned, however, to refrain from roller skating or sudden stooping so as to avoid unnecessary dislodgement of the swollen cortex.

REPORT OF CASES

CASE 1.—W. G. L. developed soft cataract at 3 years. The left eye was operated on by Dr. Strawbridge about thirty years ago, followed by swollen cortical, paracentesis, iris prolapse, posterior synechiae and subsequent retinal detachment.

Some years later, I made a free discission in the right eye without reaction or complication. Although good vision was then obtained by S+9.D, the eye has gradually shown increasing myopia. The present refraction is: O.D S—1.D⌒C—1.25D Ax 90° = 20/20 pt. Add S+2.D = J-1. The patient has useful vision without glasses.

CASE 2.—W. R. L., son of patient in Case 1, developed same type of soft cataract at 3 years of age.

April 24, 1917, under cocain and full mydriasis complete division of the lens of the left eye was performed. He left the hospital on the third day. There was no reaction. The cortex was dissolved in one month, when cataract glasses were prescribed: O.S. S + 9.D = 20/20 pt. Add S + 4.D = J-1. Ordered in bifocals.

May 19, 1920, a broad V incision of the right eye was made under cocain and full mydriasis. He returned home on the third day. There was no reaction. Solution was rapid. June 20, the eye was clear. Ordered S + 10.D for temporary use.

CASE 3.—R. W., aged 8, patient of Dr. Welden, Bethlehem, Pa., developed hazy vision at 7 years of age. The patient has soft cataract in both eyes; cloudy nucleus, peripheral spicules and indistinct fundus. Vision: O.D., 20/100, J-8; O.S., 20/200, J-10.

Nov. 19, 1919, under cocain and full mydriasis a V-shaped discission was freely performed on right eye. The patient returned to Bethlehem, Pa., on the fourth day. November 26, the cortex was swollen, the nucleus lying in bottom of anterior chamber. There was no reaction. December 15, the cortex was rapidly dissolving. Jan. 12, 1920, the pupil was free. Refraction of O.D. yields 20/40. The patient still has useful vision in the left eye. February 20, cataract glasses were ordered.

March 8, 1920, a broad converging V incision was made through the dilated pupil of left eye. Two sectors of the lens promptly turned out into the anterior chamber. There was slight reaction on the second day, which yielded to ice pads in a few hours. The patient returned home in one week. April 2, the cortex was rapidly dissolving. April 19, a rift in the cortex shows the pupil clearing. There were small fragments of nucleus in the anterior chamber. Refraction yields 20/50.

June 4, 1920, both eyes were retested with these results:

O.D. S + 9.50D = C + .50D Ax 90° = 20/20
O.S. S + 10.50D = C + .75D Ax 90° = 20/30
Add O.D. S + 3.50D = J-1
O.S. S + 3.50D = J-1

Ordered biconvex torics, centers displaced down 3 mm. and bifocals added.

CONCLUSION

Complete discission of the lens by the V-shaped method accomplishes these results:

1. One operation replaces four.
2. Expansion of cortex anteroposteriorly relieves pressure in the ciliary angle.
3. Inflammatory complications are avoided.
4. The lens cortex is rapidly dissolved.
5. Convalescence is hastened.
6. Cataract glasses can be ordered in one month.

1625 Walnut Street.

ABSTRACT OF DISCUSSION

Dr. George Huston Bell, New York: I like Dr. Ziegler's operation very much, and always employ it in juvenile cataracts and high myopia. I do a preliminary iridectomy because I feel surer of my ground; it is safer for the patient if several operations are necessary or if complications arise. It leaves the eye stronger and minimizes the risk to the patient in the years to come. It enables me with safety to the eye to do all my operations just back of the limbus. In case a linear extraction is necessary, there is then no iris or capsule to become entangled in the scar. I think it is a great mistake to make a corneal section in needling juvenile or secondary cataracts. The chances for infection are greatly increased by the corneal route, as you are selecting the weakest part of the eye for a traumatism. In my discissions with the Ziegler knife-needle, I enter the anterior chamber through the conjunctiva and sclera just back of the limbus; also in linear extractions I make my section in the same place. I should like to ask Dr. Ziegler if he has had any infections following his operations? In 1920, T. Harrison Butler reported seven infections in juvenile cataracts following the corneal route; all of his patients had a septic eye in two or three days and it had to be removed. I have the records of thirty-five cases of soft cataracts and two cases of high myopia that I have done according to this method, without any infections and practically without any postoperative reactions. Of course, in all my intra-ocular operations I used a 1 per cent. solution of silver nitrate in both eyes two hours before operating, as a preventive measure against postoperative infections. In doing these operations in this way I have come to regard them as comparatively free from all risk. We must bear in mind that in all discissions, which of necessity open up the vitreous, the vitreous, containing no antibodies, is particularly liable to infection.

Dr. S. Lewis Ziegler, Philadelphia: I have never had any infection in cases in which I have operated for juvenile cataract. In 1886 I had one infection in a posterior capsulotomy, but it was not serious, and I had one about ten years later. Those are the only two cases I can recall. The infection was from perspiration running down into the eye; probably ice was not applied as quickly as it should have been. But those cases had nothing to do with the condition I am referring to today. In those cases in which discission of the lens is done by the V-shaped method, the postoperative condition is the most placid I have seen. There is no operation on the eye that has so little reaction. I operated in three cases about two weeks ago, and not one patient had reaction. One of the patients went away to another city and came back without any reaction whatever. I do not know of any operation that I can feel less discomfort over than the V-shaped method of doing complete discission of the lens. I have never felt that there was any danger of making my incision through the cornea, but, of course, we all know that there is that possibility in many operations. While I do my iridotomy, as a rule, through the limbus, I very often do it through the cornea so that I avoid making incision in the pupillary margin. In regard to iridectomy, I do not think it is necessary to add this complication. I do not care for iridectomy in cataract operation. I think it is a mutilation to the eye to a certain extent, and if we can avoid it we should do so. These eyes, after the operation I have described, look so nice and so normal after recovery, they are free from the complications which so often occurred when the old-fashioned method of discission was employed, that I always feel a certain amount of satisfaction in doing one and watching its result.

Temperamental Peculiarities.—If we concede that only half the world is in some slight sense psychopathic, still we would not claim that any one is entirely free from undesirable habits of thought, prejudices, immoderate emotional reactions—those weaknesses of personality that we are apt to call temperamental peculiarities, which, as a rule, are quite harmless and may be very delightful. But sometimes they prove to be drawbacks to the doing of a job. In short, there is hardly anybody who would not benefit from a course in mental hygiene.—M. C. Jarrett, *Hospital Social Service* **36**:362 (May) 1921.

THE TREATMENT OF OTITIS EXTERNA WITH ACRIFLAVINE*

J. COLEMAN SCAL, M.D.
NEW YORK

Otitis externa is an infection of the cartilaginous portion of the external ear and is caused either directly by the micro-organisms of an existing purulent otitis media, or indirectly, by introduction of a foreign body.

The canal itself is an irregular passage from about 29 to 35 mm. in length and is composed of an osseous and a cartilaginous part. The latter contains the ceruminous glands and hair follicles and is the part usually affected.

The diagnosis in this affection is made readily, although care should be taken to recognize the possibility of a coexisting middle ear infection. Pain and tenderness of the cartilaginous canal are the first symptoms and may be followed by a feeling of stuffiness and partial deafness in the affected ear. This is due to the edema and swelling occluding the canal. When furuncles have formed, and the pus has burrowed backward into the epimastoid tissue, it simulates mastoiditis.

Heretofore, this condition has been treated by incision of the furuncles, heat applications and douching of the canal. Though often successful temporarily, these methods are unsatisfactory in that the process does not cease. New furuncles and foci of infection appear and continue for a long time until the process has run its course and clears up spontaneously. Vaccines have been used also but have proved unsatisfactory.

The use of acriflavine eliminates the necessity for any heroic treatment. In a series of seventeen cases, the process has been arrested with one application if the patient was seen early, while in well developed cases, three applications have sufficed. The substance used is the ordinary acriflavine now on the market. Its action as an antiseptic is based on its being a dye which chemically is known as diamino-methylacridinium chlorid. It is powerful because of its selective, destructive action on micro-organisms, without, however, harming the tissues. It is used in solutions of 1 : 500 and 1 : 1,000 with good effect.

The method of treatment consists in first cleansing the ear canal with dry cotton applicators, then packing the canal tightly with gauze strips, saturated with 1 : 1,000 solution of acriflavine, being careful not to pack too near the drum. This packing tends to stretch the canal and permits the antiseptic to act on all the micro-organisms in the crevices and fissures. The patient is supplied with some of the solution and instructed to keep the packing moist by the use of a medicine dropper. This procedure is repeated every twenty-four hours, until the ear canal is completely patulous and free from infection and pain. One week is the usual length of time required to clear up an infection. In cases in which definite furuncles have formed or are forming, when the packing is removed, the furuncles will be found to have opened themselves and the pus to have been absorbed by the gauze.

In conclusion, I will say that any one treating these patients will do well to give this treatment a trial.

* From the Oto-Laryngological Department of the Beth Israel Hospital.

Incision of the furuncles is avoided and the length of the process is remarkably shortened.

Seventeen cases of otitis externa were treated at the Beth Israel Hospital Clinic by this method with excellent results. The subjoined cases are a few that may be of interest.

REPORT OF CASES

CASE 1.—A. H., woman, aged 45, gave a history of having irritated the canal of the right ear with a hairpin, the ear becoming painful three days later. At the same time, she noticed stuffiness and diminution in hearing. Examination revealed the right ear canal greatly diminished in caliber, the swelling almost occluding the outer third. The drum was intact. An acriflavine packing was introduced, and the patient was instructed to keep the packing wet with the solution by use of a medicine dropper. When the packing was removed, twenty-four hours later, the patient admitted improvement. The ear canal was patulous, with an open furuncle located on its floor. The pus had been wiped off in the removal of the packing. Another packing of acriflavine was introduced and when the patient returned, forty-eight hours later, the canal was entirely open and free from pain and tenderness. The patient was discharged cured and instructed to keep hairpins out of her ear canals.

CASE 2.—H. J., aged 8, gave a history of pain and swelling of the left ear for the last week. Examination revealed an external otitis with several open furuncles. Acriflavine packing was applied. The patient returned in forty-eight hours with ear canal open and the furuncles dry, and was discharged cured.

CASE 3.—A. A., woman, aged 35, complained of pain and swelling in the right ear for the last five days. Examination revealed a diffuse infection of the cartilaginous canal, which was almost occluded. An acriflavine packing was applied. The patient returned in twenty-four hours. Improvement was apparent; open furuncles were now located at the anterior and upper walls of the canal. The ear canal was repacked with acriflavine, and forty-eight hours later, she was discharged cured.

950 Park Avenue.

Clinical Notes, Suggestions, and New Instruments

USE OF HOLLOW TUBE FOLLOWING SUBMUCOUS RESECTION OF THE NASAL SEPTUM

HENRY M. GOODYEAR, M.D., CINCINNATI

Almost all patients who have had a submucous resection will agree that the most distressing period of the entire procedure occurs in the first twenty-four hours following the operation, resulting from the complete obstruction of the nose by packing. The patient is compelled to breathe through the mouth; the throat becomes dry, and the entire head feels full and heavy.

There are a few operators who use no packing after the resection; but if one follows a series of cases packed and those without packing, the end-results, on the whole, are better in those cases in which the hemorrhage has been kept in check, the submucous flaps retained in apposition, and a hematoma prevented by proper packing.

If one wishes to know the distress of having the nose packed, let him hold the nares closed and attempt to drink a glass of water. He will then realize what most patients suffer for twenty-four hours or longer after a submucous resection.

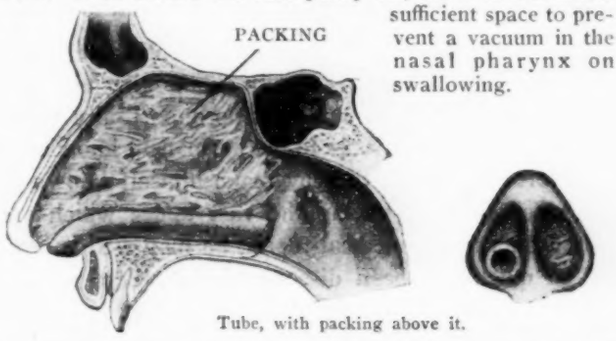
It occurred to me several years ago that this vacuum in the nasopharynx on swallowing could be prevented and the patient given considerable breathing through the nose, by the use of a hollow rubber tube placed on the floor of one side of the nose with packing inserted above it, and on the opposite side of the septum in the usual manner.

The results of this procedure have been so gratifying both to the patient and to the operator that this method of packing following a submucous resection of the nasal septum has been followed as a routine for two years.

The tube is usually inserted on the floor opposite the side of the primary incision, as pictured in the accompanying illustration, and is removed with all packing at the end of twenty-four hours.

Pure gum hospital tubing with a one-quarter inch opening is the most satisfactory. A number of varieties of tubing have been tried, and it is important that the tube be pliable, with a comparatively thin wall, affording a caliber of one-quarter inch for routine practice.

I find that the average length of the tube required is from 2½ to 2¾ inches. It is better to have the tube a trifle short than to have it too long, as it may touch the pharyngeal wall or gather mucus more rapidly than it would if buried deeply in the postnasal opening. If the tube should become clogged, the patient may blow through it without danger of dislodgment, or an applicator may be passed to clear its opening. When the tube is clean, I find that the patient, while quiet, can often breathe comfortably through it without opening the mouth. Even should the tube partly fill, there still remains sufficient space to prevent a vacuum in the nasal pharynx on swallowing.



Tube, with packing above it.

Three per cent. iodin thoroughly applied between the flaps before packing acts as an ideal antiseptic in the absence of water. Thus, all irrigations are avoided immediately prior to operation.

Petrolatum gauze packing is used in strips sufficiently long that but one strip is used in each side. This is an aid in removing later, as it prevents fishing for a second piece and affords assurance that the nose has been completely emptied in all cases, when the tube and one strip of gauze have been removed from each side.

The use of the tube is so simple and yet so revolutionizes the after-treatment of submucous resection that one wonders it has not been described before.

8 East Eighth Street.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

MIXED BACTERIAL VACCINES (See New and Nonofficial Remedies, 1921, p. 314).

Lederle Antitoxin Laboratories, New York.

Acne Combined Vaccine.—A suspension of killed acne bacilli and killed ***Staphylococcus albus and Staphylococcus aureus,*** marketed in packages of four 1 Cc. vials, containing, respectively, 5, 10, 20 and 40 million killed acne bacilli, 25, 50, 100 and 200 million killed *Staphylococcus albus* and 25, 50, 100 and 200 million killed *Staphylococcus aureus;* in packages of one 5 Cc. vial, each Cc. containing 40 million killed acne bacilli, 200 million killed *Staphylococcus albus* and 200 million killed *Staphylococcus aureus;* in packages of one 10 Cc. vial, each Cc. containing 40 million killed acne bacilli, 200 million killed *Staphylococcus albus* and 200 million killed *Staphylococcus aureus;* in packages of one 20 Cc. vial, each Cc. containing 40 million killed acne bacilli, 200 million killed *Staphylococcus albus* and 200 million killed *Staphylococcus aureus;* in packages of one 20 Cc. vial, each Cc. containing 400 million killed acne bacilli, 2,000 million killed *Staphylococcus albus* and 2000 million killed *Staphylococcus aureus;* also in packages of four syringes containing, respectively, 5, 10, 20 and 40 million killed acne bacilli, and 25, 50, 100 and 200 million killed *Staphylococcus albus* and 25, 50, 100 and 200 million killed *Staphylococci aureus.*

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SATURDAY, OCTOBER 1, 1921

MODERN PROBLEMS IN TWO MEDICAL SPECIALTIES

The young man in medicine frequently feels that the routine of his work is slowly submerging him into the depths of obscurity and that no opportunity exists whereby he may contribute to the permanent knowledge of his profession and thereby make himself known in his chosen field. Viewing the vast tomes which are printed on various medical topics, he may well believe that so much has been discovered that there are no problems remaining on which he may contribute further light. It was possibly with this idea in mind that the presidents of two of our special medical societies this year devoted their addresses to pointing the way to problems yet unsolved.

"The Neurologic Dilemma," which formed the subject of the address of Dr. S. I. Schwab [1] before the American Neurological Association, is to know the exact limits of the field of neurology. Neurology, according to Schwab, is concerned with the totality of the problems presented by the nervous system in health and disease, and any condition influenced by this disturbed function. There seems to have been developed a wide separation between neurology and psychiatry, the psychiatrists establishing themselves as a separate specialty and devoting their attention to problems of the mind without any reference to body structure or physiologic function. Schwab would accentuate the conclusion that there is no psychiatric point of view and that there is no such thing as a psychiatric method of approach which can be logically divorced from the neurologist's point of view; the latter has been reached through anatomic and physiologic methods of thinking, and thus a mass of definite tangible information has been acquired. Neurology suffers when it separates itself too far from the problems of medicine as a whole, and psychiatry, he believes, has suffered from such artificial separation. Thus, the neurologists' objection to a great deal of the Freudian conception of the neuroses is not due to the conclusions but to the loose methods of thinking. "In the physiology of the nervous system," says Schwab, "is to be found the key to the neuroses, and from it will eventually arise the laws governing the grouping, distribution and quality of the sensory objectivation of hysteria, just as definitely set as those produced by a tabetic lesion of the posterior root and column." In other words, the study of psychiatry is not following the correctly scientific lines which have governed the large majority of neurologic investigations. Instead of seeking for the etiology of dementia praecox, of hysteria or of any of the other psychoses, in disturbed anatomic structure or deranged physiologic function, attempts have been made at weird classifications and fanciful hypotheses. Students have been led afield and lost in a maze of terminology without the guidance of rigid actual data. The determination of such data opens a wide field for the neurologic research worker of the future.

In addressing the American Dermatological Association, Dr. J. F. Schamberg [2] mentioned a few of the diseases of the skin which are today the subjects of much interesting discussion. To him the recently demonstrated factors in cancer of the skin do not support the parasitism of this disease. Dermatologic experience indicates that cancer of the skin is in a vast majority of the cases due to repeated mechanical, chemical and actinic or electromagnetic stimuli. Such influences applied to hypersusceptible individuals seem to result frequently in cancer, but the causes that render persons hypersusceptible to these influences are still a fertile field for investigation. One of the most common of skin diseases—a condition which seems to affect at least 70 per cent. of young persons in their adolescent period—acne, is as yet an unsolved problem. Most writers believe the cause to be bacterial, and yet all authors cite contributory causes, including disturbances of the alimentary and utero-ovarian systems. Practically all young female patients with acne exhibit a menstrual exacerbation of the eruption. Here are a number of known facts which may point the way to studies which will yield a positive conclusion. It is interesting to think of hormones or of similar bodies, but the actual demonstration of such factors yet remains to be made. In fact, the whole subject of the relation of internal secretions and endocrine disturbances to dermatologic irregularities is just as obscure as are most of the other problems of endocrine relationships. Schamberg, postulating his idea on the interlocking reciprocal influences of the various organs of internal secretion, even suggests the existence of a possible internal secretion from the skin itself. His final words are on that conglomerate concept known as "eczema." "It becomes the duty of the dermatologist," he says, "to ascertain whether protein sensitization from food or bacteria, endocrine disturbances, focal

1. Schwab, S. I.: The Neurologic Dilemma, Arch. Neurol. & Psychiat. 6: 255 (Sept.) 1921.

2. Schamberg, J. F.: Research Problems in Dermatology, Arch. Dermat. & Syph. 4: 293 (Sept.) 1921.

infection, intestinal toxemia, renal insufficiency or some general metabolic disorder is the etiologic factor." The list presented includes subjects which have occupied a vast amount of space in medical literature during the last few years, causes to which have been accredited a multitude of human disturbances, and yet in most cases actual evidence is lacking.

The young man in medicine will here find food for thought and suggestions for extended investigation. The leaders in two important specialties have pointed out where opportunity lies.

VITAL CAPACITY AND PHYSICAL FITNESS

The factors that limit the size of such organs as the liver or the kidney in normal men and animals are practically unknown; but we generally assume that the control is chemical, the specific organ responding with growth to the work placed on it by the chemical activities of the other organs of the body. The well known hypertrophy of the blacksmith's biceps, and the more obscure compensatory hypertrophy of glands seem to support this assumption. But, as the late Samuel J. Meltzer pointed out years ago, nature works on a wide "margin of safety." The relation between specific needs of the body as a whole and functional capacity of an organ to meet this need is not a direct arithmetical ratio. We can maintain good health with one normal kidney, one thyroid lobe, etc. It is thus evident that, if functional need on the part of the organism is the stimulus and limiting factor in organ development, the organ response in growth is much greater than suffices to meet the maximum need under conditions of health. This is obviously an advantageous arrangement for the individual under conditions of disease. It is also a disturbing factor to the scientist who attempts to deduce laws of function from anatomic measurements. The view that functional capacity of an organ can be measured by its cubic content has serious limitations. Nevertheless, important correlations between anatomic and functional measurements have actually been made out in certain fields, for example, the relation of body surface to basal metabolic rate in warm blooded animals, and the less significant but more frequently used ratio of body height to body weight as a measure of normal health and physical fitness.

Prof. Georges Dreyer, the Oxford pathologist, has recently endeavored to deduce another anatomic measure of physical fitness in the relation of vital capacity to body weight and sitting height (length of torso).[1] On the basis of four anatomic measurements (body weight, length of torso, chest circumference and vital capacity) on sixteen normal men and boys, Dreyer has developed mathematical formulas by which any one of these measurements can be calculated from the others. He concludes that "the vital capacity of the chest is a function of the body weight, and a simple function of the body surface." In the book, practical directions are given for taking these measurements accurately, and numerous tables are reproduced, representing the figures for different sized normal persons. Accepting Dreyer's conclusions, one may readily ascertain the "normalcy" of an individual by comparing the four measurements with these standard tables.

But is the matter really as simple as this? Dare we conclude with Dreyer that "if a person has a vital capacity 10 per cent. less than that which is normal for his class, it is probable that he is suffering from some health depressing condition; if he is 15 per cent. below the normal limit, it is practically certain that he is abnormal"? We question the validity of such generalizations from a few anatomic measurements on sixteen men and boys. Nearly eighty years ago, Dr. John Hutchinson[2] concluded, on the basis of a great many measurements, that the vital capacity increased in a simple arithmetical progression with the length of the body. But there appears to be no simple relation between length of body and physical fitness or span of life. Of course, Dreyer takes issue with Hutchinson's conclusion.

One of the practical and at the same time most difficult and least satisfactory parts of Dreyer's work is the arrangement of the population in three classes representing perfect, medium and poor vital capacity and physical fitness. The lines of division are mainly those of occupation. In the first class are placed all army and navy personnel, policemen, university students, boys in public schools, blacksmiths, and the like. In the second class come physicians, lawyers, business men, railway men, mechanics, children in "upper schools" and "clerks, upper class." In the third class we find tailors, shop keepers, "clerks, lower class" and children in the elementary grades. The grouping may fit the population of the city of London. It is of doubtful value as applied to the people of the United States. The farmer is not placed in any class. The American reader will scarcely understand the apparent improvement in the physical fitness of schoolchildren with their advance in the school grades, or the significance of the "upper" and "lower" classes of clerks, except on the basis of the relation of poverty to disease. There appears to be more patriotism than science in the placing of all military personnel in the A class.

What do we measure by vital capacity? Merely the maximum tidal air that may enter or leave the lung. It is not a measure of respiratory efficiency, as the latter involves not only chest volume but also lung, circulatory, blood and tissue conditions. Is vital capacity a measure of the individual's resistance to disease, specifically, disease of the lungs? The most

1. Dreyer, Georges: Normal Vital Capacity in Man, Lancet **2**: 226 (Aug. 9) 1919. Dreyer, Georges, and Hanson, G. F.: The Assessment of Physical Fitness, New York, 1921.

2. Hutchinson, John: Lancet **1**: 630, 1846.

that can be said at present is that a very much reduced vital capacity may be one of the predisposing factors to pulmonary tuberculosis. We all know that a subnormal vital capacity is compensated for by a more rapid rate of respiration, and under conditions of modern life, it is a rare exception that one is called upon to sustain the maximum lung ventilation of 150 liters of air per minute.[3] The vigorous "one-lunger" with his subnormal vital capacity is not a myth.

The late war stimulated some mature and some infantile scientific endeavors. The medical profession shared in both. One of the species *ridiculus mus*, brought forth by the British air service, was the selection of cadets on the basis of vital capacity, the standard being that of the most competent fliers!

It was once believed that greater than average mental capacity meant a larger than average brain. This has proved not to be true, as the cubic content of an organ does not reveal the quality of the tissue. Hence, conclusions as to physical fitness and vital resistance, based on anatomic measurements alone, require extensive statistical verification before one is justified in accepting them.

IS CHRONIC NEPHRITIS A PROGRESSIVE DISEASE?

Despite the didactic manner in which chronic nephritis is ordinarily discussed in medical publications, it must be confessed that the origin of this condition is still a subject for critical discussion. Unfortunately, the attempts to produce chronic nephritis through experimental procedures have not been sufficiently successful to establish any defensible theory of the common causes of the degenerative conditions. Herrick[4] clearly pointed out several years ago that experimental work can scarcely be expected to duplicate or even approximate the conditions that seem operative in the production of chronic interstitial nephritis in man. The influence of heredity, dietetic errors, faults of metabolism, syphilis, many of the infections, the wear and tear of the strenuous life and of excessive mental and nervous strain—all these continuing perhaps for years, as Herrick remarks—cannot be reproduced experimentally in animals.

The most common assumption—it is scarcely more than that—regarding the production of chronic nephritis is that it represents a prolongation of the action of causes which bring about acute nephritis. Thus, Strauss[5] remarks in a recent volume on the nephritides that the chronic types may arise from acute forms. He pictures the intensity and the duration of the disease as essentially dependent on the potency and continuance of the predisposing factors. The prolonged application of the latter is particularly emphasized. American writers have similarly expressed the indefinite belief that some factors which, when operating suddenly or with great intensity, produce acute nephritis may, if operating for a longer period or with less severity, produce the chronic form of the disease. At the Boston session of the American Medical Association, Frothingham[6] expressed the suspicion that chronic nephritis may consist in a progressive degeneration of the renal tissue dependent either on disturbance in its nutrition on account of scars from former lesions, or on some toxin originating elsewhere in the body and coming to the kidney for excretion.

In contrast to these traditional familiar views, Emerson[7] of Indianapolis has defended in the pages of THE JOURNAL the thesis that chronic nephritis is essentially the result of the summation of repeated acute injuries to the renal tissues. In this condition he distinguishes two processes: first, the chronic, that is, the permanent element, the epithelial cell proliferation and the scar tissue formation, both of which are evidences of healing; and, second, an acute injurious element, of the nature of a definite acute nephritis, which perpetuates the disease and indirectly increases the permanent lesion. Hence he insists that, in general, chronic nephritis is not a progressive disease varying in severity at different periods but nevertheless progressing; on the other hand, it is rather a succession of slight, distinct, acute diseases distributed over years, each adding a little to the permanent injury of the kidney as a whole. The albumin, blood cells, renal cells and casts in the urine are evidences of the acute process and are, in amount and number, fairly proportional, on the one hand, to its severity and, on the other, to the previous good condition of the renal epithelium. The urine between two acute exacerbations may be perfectly normal, even though the kidney is quite scarred.

There are unquestionably many clinical facts that fit in well with such an hypothesis, which denies that chronic nephritis is a process which, once started, necessarily tends to continue because of a mechanism of its own. As Emerson has expressed the outlook, the bad prognosis which is usually assumed is not due to the injuries the kidneys have received, but to those they are receiving and will receive. The patient does not suffer from one attack of nephritis, but from one thousand and one. The acute exacerbations frequently betray themselves by accompanying febrile reactions which serve as an index and a warning. It becomes an immediate therapeutic duty, therefore, to search for present causes usually remediable because they are temporary and incidental. Focal infections naturally loom large in the contemplation of those who are most devoted to the search for these forms of menace to human health. Renal insults of dietary origin, food

3. Bainbridge, F. A.: The Physiology of Muscular Exercise, London, 1919, p. 32.
4. Herrick, J. B.: Osler's Modern Medicine **6**: 163, 1909.
5. Strauss, H.: Die Nephritiden, Berlin, 1920, p. 20.
6. Frothingham, Channing, in discussion of Emerson's paper (Footnote 4).
7. Emerson, C. P.: The Acute Element in the Chronic Nephropathies, J. A. M. A. **77**: 745 (Sept. 3) 1921.

allergy, exposure to cold, overwork and other equally indefinite factors which may affect delicate organs must be kept in mind as etiologic possibilities—or causal agents, as a recent correspondent [8] would have us write—in the attempts at relief. In any event, there is something more hopeful both from a therapeutic and a prognostic standpoint in directing attention to the possible elimination of temporary flare-ups in the kidney rather than to the less promising attempt to alleviate a permanent defect that is presumably progressive.

INFLUENCE OF "PATENT MEDICINE" INTERESTS IN BRITISH PARLIAMENT

When one becomes pessimistic over the monstrous waste and the injury to the public health, for which the "patent medicine" industry of this country is responsible, turn to some of the magazines and newspapers published previous to 1907. Compare the advertising of that time with the advertising of today and it will be realized that the world does move and that public health legislation has accomplished something. If it is difficult to get hold of newspapers or magazines of this old date, the same reaction can be obtained by getting current issues of British newspapers and periodicals. Broadly speaking, the ethical standard of the "patent medicine" industry in Great Britain in 1921 is that which obtained in the American "patent medicine" industry prior to 1907. These statements are made in no "holier than thou" spirit. Thoughtful Americans recognize the tremendous potentialities for evil still inherent in the nostrum business in this country, and thoughtful Englishmen, both physicians and laymen, are alive to the deplorable waste and fraud for which the English "patent medicine" business is responsible.

Our readers will remember that as long ago as 1912 the British Parliament created a Select Committee on Patent Medicines to investigate the subject. This the committee did, earnestly and exhaustively, and published a voluminous and enlightening report in the latter part of 1914. The coming of the World War, however, favored the nostrum interests and no legislative action was taken until 1920, when in July of that year the Proprietary Medicines Bill was introduced in the House of Lords by the Parliamentary Secretary to the Ministry of Health. In general the provisions of the bill followed the recommendations of the Select Committee in its report.

At the time of the introduction of this bill THE JOURNAL called attention to the fact that the "patent medicine" interests were putting up the same fight and along the same lines, that was staged in the United States in 1905-1906, when Congress was considering the bill that became the National Food and Drugs Act. At that time [1] THE JOURNAL said:

> That the Proprietary Medicines Bill will become a law in its original form is not to be expected. The "patent medicine" trade in Great Britain is as powerful as it is in the United States. It has millions behind it, and it forms a substantial section of the London Chamber of Commerce. British newspapers may be counted on, practically as a unit, to fight any bill that will restrict the sale of "patent medicines"; some of them have already published editorial denunciations.

Now comes the *Medical Press and Circular* (London) complaining editorially because the Proprietary Medicines Bill has been pigeonholed and the government seems to be in no hurry to bring it before Parliament for action. Our British contemporary points out that in 1920 the British Government received revenue from the sale of "patent medicines" totaling £1,332,661 (in normal exchange times equivalent to about $6,663,305). It points out also that the very fact that a government, hard up for revenue, should be able to obtain so vast a sum from a business, so largely tinctured with fraud and such a menace to the public health, may be "a sufficient reason" in explanation of the British Government's attitude of "innocuous desuetude" toward this bill. In passing, it is worth calling attention again to the inadvisability of levying a tax on the "patent medicine" industry. It not only makes that industry a source of income to the government but also it invests it with an air of respectability wholly foreign to it and, in addition, leads an uninformed public to assume that the government stamp in some way causes the government to stand sponsor for the product that bears it.

The *Medical Press and Circular* also calls the attention of its readers to the fact that the British Government in passing on the Proprietary Medicines Bill is not breaking virgin soil nor exploring untraversed territory. As our London contemporary says: "Meanwhile there is not much which the United States Government does not know in regard to the question of patent medicines, and the means of dealing with their control."

8. Heald, G. H.: Why Shun Short Words? Correspondence, J. A. M. A. **77**: 958 (Sept. 10) 1921.

1. The British Proprietary Medicines Bill, editorial, J. A. M. A. **75**: 675 (Sept. 4) 1920.

Definition of Term "Stillbirth."—In the report of the Bureau of the Census on Birth Statistics for the Birth Registration Area of the United States, for 1918, it is pointed out (pages 28 and 29) that the data relating to stillbirths must be interpreted with caution. Since the term stillbirth is not used in the same sense in the various states, the percentage of completeness of these reports is not known. The "model law" reads: "A stillborn child shall be registered as a birth and also as a death . . . provided that a certificate of birth and a certificate of death shall not be required for a child that has not advanced to the fifth month of utero-gestation." Minnesota, New York and North Carolina have similar provisions; the District of Columbia requires a certificate for a fetus "passed the fifth month"; the Indiana law reads "seven months gestation and over"; and the remaining states use the term of stillbirth without defining it.—W. T. Howard, Jr., *Am. J. Hygiene* **1**:204 (March) 1921.

Current Comment

THE TREND OF MORTALITY IN CONTROLLABLE AND UNCONTROLLED DISEASES

In a recent address on public health activities, Prof. Raymond Pearl [1] of the School of Hygiene and Public Health at the Johns Hopkins University has uttered a protest against the widespread assumption that all of the decline in the death rate which has occurred in the last few decades is attributable to the activities of modern hygienic reforms and the propaganda of preventive medicine. A comparison of the trend of the death rates for various causes of death furnishes some unsuspected results. It appears from Pearl's compilations that in the case of deaths from bronchitis, paralysis without specific cause, purulent infection and septicemia, and softening of the brain, four groups in which public health activities and sanitation have had little if anything to do with the trend of mortality, the latter actually shows greater improvement than in the case of the four diseases phthisis, typhoid fever, diphtheria and dysentery which have long been the subject of special consideration by sanitarians. One cannot avoid the conclusion that factors which the modern public health program does not primarily emphasize or seek to secure are concerned in the decline in death rate. This is not meant to disparage the value of the present day attacks upon the known causes of controllable disease, but rather to call attention to little appreciated or even unknown factors that make for well-being. There are forms of immunity, for example, that may become increased through the modern methods of life. Perhaps we have been engaged so assiduously in the search for the materies morbi and the effort to eliminate it that we have failed to realize the potency of man himself to resist the encroaches of disease. Pearl has possibly taken a depressing and unwarranted stand when he asserts that we shall save a good deal of money and human energy if we first take the trouble to prove that what we are undertaking to do is in any degree likely to achieve any useful end. Nevertheless, it is well to look squarely at the facts of the trend of mortality.

INJECTION OF GAS TO OUTLINE THE KIDNEY

Among the newer methods of examination brought to light during the last few years is the injection of air or gas into various body cavities, with subsequent application of the roentgen ray, revealing the outlines of various organs and, in the case of the female genital tract, showing the patency of the fallopian tubes. Carelli and Sordelli [2] have now applied a similar method to throw into relief the outline of the kidney. The technic involves a preliminary roentgenogram to show the location and relations of the second lumbar transverse process. A narrow needle, 10 cm. long, is then introduced down to this bone. When the needle touches the bone, the tip is slanted away from it, and the manometer connected with the needle begins to fluctuate as the tip reaches the adipose tissue surrounding the kidney. With the idea of inducing an emphysema in the perirenal adipose tissue, from 200 to 400 c.c. of carbon dioxid gas are injected, and a second roentgenogram is taken. The report, which is accompanied by six roentgenograms of normal kidneys and three of kidneys with calculi, indicates that, by this method, the authors have been able to show definitely the outline of the kidney, the ureter and the suprarenal gland. In the earlier experiments oxygen was used, but the investigators found that twenty-four hours were required for absorption, and hence changed to carbon dioxid. The little discomfort that patients are reported to feel is said to disappear in less than half an hour when carbon dioxid is used.

1. Pearl, Raymond: The Biology of Death, VII, Natural Death, Public Health, and the Population Problem, Sc. Month. **13**: 193 (Sept.) 1921.

2. Carelli, H. H., and Sordelli, E.: Un nuevo procedimiento para explorar el riñón, Rev. de la Asociación Méd. Argentina **34**: 424 (June) 1921.

NITROBENZENE POISONING, METHEMOGLOBINEMIA AND WINCKEL'S DISEASE

Nitrobenzene is a substance widely used in the dye industry, in shoe polish, and in soaps and inks; it has also been extensively employed for denaturing alcohol. Within the past few years, reports have been frequent [1] of cases of illness, including such symptoms as cyanosis, vertigo, headache and tinnitus, in persons who had recently worn shoes freshly dyed with materials containing this substance. All of the symptoms were manifestations of methemoglobinemia, as evidenced chiefly by a grayish blue cyanotic color of the skin and the mucous membranes. In rare instances, nausea, vomiting, great muscular weakness, marked dyspnea and convulsive movements ensued, and in one instance, reported by Donovan,[2] death occurred following the drinking of a small quantity of shoe polish. Recently Neuland [3] has called attention to the possibility of poisoning from dyes and inks stenciled on articles used by and in the vicinity of young children. Two infants about 11 days old were found one morning to be bluish gray in appearance and, except for this intensely livid aspect, wholly normal. Naturally a congenital heart defect suggested itself, but the sudden and simultaneous onset in the two children cast doubt on such a diagnosis. Finally it was found that anilin ink had been used to stencil the laundry marks at numerous points on the diapers and clothing of the infants. Removal of the fresh dye resulted in prompt recovery of the babies. Neuland [4] therefore warns that such laundry marks be thoroughly boiled before garments are worn. He supplements his observations with a discussion of twenty-three cases of hemoglobinuria with afebrile cyanosis and jaundice described by Winckel [5] in 1879. It occurs to Neuland that this con-

1. Stifel, R. E.: Methemoglobinemia Due to Poisoning by Shoe Dye, J. A. M. A. **72**: 395 (Feb. 8) 1919. Scott, R. W., and Hanzlik, P. J.: Poisoning by Alcohol "Denatured" with Nitrobenzene, ibid. **74**: 1000 (April 10) 1920. Sanders, F. G.: Nitrobenzene Poisoning with Cyanosis, ibid. **74**: 1518 (May 29) 1920.

2. Donovan, W. M.: The Toxicity of Nitrobenzene, J. A. M. A. **74**: 1647 (June 12) 1920.

3. Neuland, W.: Poisoning of Infants and Children by Methemoglobin Producing Substances (Anilin, Naphthalin, etc.), Med. Klin. **17**: 903 (July 24) 1921.

4. Neuland, W.: Winckel's Disease, Med. Klin. **17**: 906 (July 24) 1921.

5. Winckel: Deutsch. med. Wchnschr., 1879, p. 24.

dition, since known as Winckel's disease, fifteen cases of which were also described by Reuss [6] in 1914, is a chemical poisoning rather than an infectious or constitutional disease, although it is possible for bacterial intoxication to induce a similar clinical picture. In any event, the importance of ruling out the possibility of anilin poisoning when methemoglobinemia is the predominant symptom is quite apparent.

"EAT-MORE" CAMPAIGNS

This is the day of the "Eat-More" campaign. From billboards, newspaper advertisements and periodical pages, the slogan "Eat-More" crashes upon the reader's intelligence. He is besought to eat more meat; he is requested to eat more raisins; it is hoped that he will eat more oranges; he is invited to eat more apples; the coffee planters beg him to drink more coffee; the tea importers beseech him to imbibe more tea, and the tobacco manufacturers plead for purchase in carton rather than in individual package. And whenever possible the earnest advertiser drags in a medical argument to sustain his plea. Without reference to the actual justice or injustice of any of this advertising, it is well to bear in mind that greatest of all medical aphorisms: "Moderation in all things."

THE VON HELMHOLTZ CENTENARY

This year marks the centenary of the birth of Hermann von Helmholtz, a man who has very properly been ranked with the foremost of those investigators and thinkers on whose work the great advances in twentieth century science rest. Few men have approached him at any time in the wide range of their intellectual activities; for he was distinguished as a mathematician, physicist and physiologist, in addition to which his contributions to other fields of learning have been of a high order. Professor Mendenhall [7] recently remarked that, in respect to his prodigious learning and the wide scope of his investigations, Helmholtz may be put in the same category with Francis Bacon and his own renowned fellow countryman, Alexander von Humboldt. The enormous extension of the bounds of human knowledge within the last fifty years and the irresistible tendency to specialization make it certain, Mendenhall ventured to assert, that there will never be an addition to this group. To the physicist the name of Helmholtz stands out in connection with his contribution to the concept of energy. In 1847, at the age of 26, Helmholtz read before the Physical Society of Berlin one of the most remarkable papers of the century. The doctrine of the indestructibility of matter had already become axiomatic. The work of the young German who, like many other scientists of distinction, came to his career through the applied science of medicine, helped to establish the doctrine, now so fundamental and familiar that it does not require comment, that energy also is constant and indestructible. To the medical profession, however, the centenary should bring to mind Helmholtz's invention of the ophthalmoscope, an instrument that has proved of inestimable value in practice during the seventy years since it was first described in 1851. It is said [8] that when von Graefe first saw with it the interior of the eye he cried out, "Helmholtz has unfolded to us a new world." In a generation of rapidly accumulating technical aids in medical procedure, when progress sometimes seems so rapid that we forget the humbler beginnings of practice, it is well to pause now and then to recall the origin and the originators of every day helps to success.

6. Reuss: Diseases of the New-Born, 1914, p. 421.
7. Mendenhall, T. C.: The Centenary of the Birth of Hermann von Helmholtz, Science 54: 163 (Aug. 26) 1921.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Personal.—Governor Campbell has announced the appointment of Dr. Clarence E. Yount, Prescott, as a member of the state board of medical examiners, to succeed Dr. Charles S. Vivian, Phoenix, resigned.

CALIFORNIA

Hospital News.—It has been announced by the board of supervisors that plans and specifications have been awarded for the construction of the communicable diseases building, to be erected at the County Hospital, Los Angeles, at a cost of $150,000. The new building will be three stories high and will provide accommodations for 100 patients, with every modern equipment. Cottages for the employees of this unit will also be constructed, at a cost of $18,000.——A new twelve bed hospital has been erected and recently opened at Artesia, under the management of Drs. David Zbinden and Charles Stein. The building has all modern conveniences and improvements.

ILLINOIS

Appointment of Assistant Director in State Health Department.—Dr. Thomas H. Leonard, Lincoln, has been appointed by Governor Small as assistant director of the state department of public health. The appointment became effective, Sept. 16, 1921. Dr. Leonard will devote the most of his time to tuberculosis work.

Elgin Academy of Medicine.—To forward in every detail the high ideals and standards of the study of medicine is announced as the purpose of the Elgin Academy of Medicine, recently organized. The officers elected for the year are: president, Dr. Ora L. Pelton; vice president, Dr. William S. Brown; secretary-treasurer, Dr. Arthur L. Langhorst.

Many Local Better Baby Conferences Held.—Better baby conferences have been popular this fall in Illinois. Following the sixth annual Better Babies Conference conducted in August by the state department of public health, and which was the most successful ever undertaken, more than a score of local communities carried out similar programs in connection with county fairs.

State Department of Health Endorses Cancer Week.—Dr. Isaac D. Rawlings, director of public health, has announced that the state department of public health heartily endorses the action of the American Society for the Control of Cancer in designating the week of October 30 to November 5 as "Cancer Week." Several local medical societies in Illinois have already acted on the matter favorably and have organized committees and outlined suitable programs for the week. In Chicago the plan embraces a course of public lectures to be given in school auditoriums by internists, surgeons, gynecologists and pathologists. The state department of health is urging other local societies throughout the state to take similar action.

8. Sedgwick, W. T., and Tyler, H. W.: A Short History of Science, New York, 1917, p. 444.

Typhoid Fever More Prevalent Than in 1920.—Reports to the state department of public health show a considerable increase in typhoid fever incidence this year over that for 1920. During June, July and August there were 910 cases reported against 511 for the same period last year. A total of 1,324 cases had been reported up to September 1, while only 1,021, a little more than 300 less, were reported for the entire year of 1920. While cases have been reported from all parts of the state, still more than half of the 422 recorded for August occurred in less than a dozen counties. These counties, together with the number of cases reported from each are as follows: Cook, 45, of which only 9 were in Chicago; Kane, 31; Franklin, 19; Stephenson, Will and Williamson, 18 each; Fayette, 17; Macon and Sangamon, 14 each; Champaign and Johnson, 10 each. The results of a large number of special investigations carried out by the department at various points throughout the state indicate that much of the typhoid fever has been due to the activities of carriers. In some instances an entire outbreak has been definitely traced to one or two carriers who were engaged in the production and distribution of food products, particularly of milk.

Illinois Birth and Death Rates for 1920.—Figures recently released by the division of vital statistics of the state department of public health show that the general death rate for Illinois in 1920 was the lowest ever recorded with the exception of that for 1919. The death rates per thousand population for the state for the past five years were as follows: 1916, 13.2; 1917, 13.8; 1918, 16.2; 1919, 12; 1920, 12.6. The birth rates per thousand population for the same years, respectively, were 18.5, 17.4, 18.4, 17.2 and 18.4. During the same period the annual birth rates and death rates for Chicago have been slightly in excess of those for the state as a whole. The death rates per thousand population for the five years in Chicago were as follows: 1916, 14.4; 1917, 14.8; 1918, 17; 1919, 12.5; 1920, 12.8. For the same years, in the above order, the birth rates per thousand population in Chicago were 19.0, 19.3, 19.0, 16.5 and 18.4. Out of a total of 82,132 deaths in the state during 1920, accidents caused 1,587. Of this number 734 were caused by automobiles, 558 by railroads, 128 by street cars, 33 by interurban railways, 3 by aeroplanes and 131 by various other means. Of the 734 automobile fatalities, 450 occurred in Chicago against 284 for the rest of the state. There were 149 fatal railroad accidents and 105 deaths caused by street cars in Chicago, compared with 409 and 23, respectively, for the rest of the state.

Chicago

Drive for Mount Sinai Hospital.—A campaign was opened this week to raise $500,000 for the Mount Sinai Hospital.

Personal.—Dr. Frederick H. Falls, Chicago, has been appointed head of the department of gynecology and obstetrics of the State University of Iowa College of Medicine.

Forbes Criticizes Speedway Hospital.—Director C. R. Forbes of the Veterans' Bureau in a recent visit to Chicago inspected the Speedway Hospital and criticized its efficiency. He is reported to have emphasized what has previously been alleged: that 300 employees were taking care of eighty patients and that the hospital could never accommodate satisfactorily more than 800 patients.

Diphtheria Committee.—A committee appointed by Health Commissioner John D. Robertson to investigate the cause of the high diphtheria rate in Chicago is holding meetings with a view to outlining a plan for controlling this disease. The committee is headed by Dr. George H. Weaver of the Durand Hospital of the Memorial Institute for Infectious Diseases and Dr. Julius Hess, professor of pediatrics in the Medical School of the University of Illinois.

INDIANA

Personal.—Dr. John Connelly, Rockville, has been appointed general physician and surgeon of the Indiana State Tuberculosis Hospital, Sand Creek.

MAINE

Personal.—Dr. Adam P. Leighton, Jr., of Portland has been reappointed to the state board of registration of medicine for the six-year term.

Dispensary Offered to City.—The Edward Mason Dispensary which was a gift to the Bowdoin Medical School is reported to have been offered to the city of Portland for the city's use and maintenance since the medical school closed its doors, June 25.

Hancock County Medical Society.—At the meeting of the society, held, September 6, at Blue Hill, under the presidency of Dr. Arthur H. Parcher, Dr. John J. Moorhead, New York, Dr. William C. Peters, Bangor, and Dr. James M. Anders, professor of medicine at the University of Pennsylvania, were among the visiting physicians.

MARYLAND

Personal.—Dr. William Walter Cort, associate professor of helminthology in the School of Hygiene and Public Health, has returned after spending four months studying hookworm larvae in Trinidad, West Indies. He was director of the expedition sent out for that purpose by the International Health Board of the Rockefeller Foundation.

Lecture on Herter Foundation.—Trustees of the Johns Hopkins University announce that the thirteenth course of lectures on the Herter Foundation will be given by Sir Arthur Keith, F.R.S., M.C., conservator of the museum and hunterian professor, Royal College of Surgeons, England, at the medical amphitheater, Johns Hopkins Hospital, October 5-7, on "The Differentiation of Modern Races of Mankind in the Light of the Hormone Theory."

MICHIGAN

Physical Stock Taking of Schoolchildren.—Beginning October 3, sixteen physicians, serving as half-time school medical inspectors for the department of health, will commence the annual campaign of true preventive medicine. Four of this group will serve as an immunization squad, and on them will devolve the entire work of vaccination against small pox and immunization against diphtheria. This group will follow a schedule from school to school, and the nurses will have ready for them the children whose parents have given permission for immunization against these two diseases. The other twelve men will serve as physical examiners. They will be divided into four teams of three men each. A nurse will be assigned to each team. All physical examinations in the schools will be conducted by these men, who will follow a schedule, traveling from school to school. This work will be concluded before December 1. Following this the teams will again make the circuit of the schools, examining all first grade children and such casuals from other grades as are referred by the nurses. Completing this work by March 15, the teams will again make the circuit, examining all fifth grade children. It is expected that 50,000 children will be reached by these physical examinations during the course of the school year.

MONTANA

Personal.—Dr. William F. Cogswell, secretary of the state board of health, has been appointed field agent of the U. S. Public Health Service in Montana. The appointment is part of the campaign of cooperation between the state and the federal government in the wood tick control as a means of combating Rocky Mountain spotted fever.

NEW JERSEY

Death Rate Low Despite Typhoid Outbreak.—Although the typhoid fever epidemic in Burlington County resulted in a large number of deaths the report of the bureau of Vital Statistics of the State Department of Health for August shows a total of 2,971 deaths, of which 160 were of nonresidents, leaving a total of 2,811 resident deaths or a decrease of nineteen from that of the previous month in New Jersey.

NEW YORK

Personal.—Dr. Victor C. Jacobson has been appointed instructor in pathology at the Albany Medical College.—— Dr. Isaac W. Brewer, former city health officer of Watertown, has been made superintendent of Pleasant Valley Sanatorium, the Steuben County Tuberculosis Hospital, at Bath.

Electrotherapeutic Society.—The New York Electrotherapeutic Society will hold its next meeting at the United States Naval Hospital in Brooklyn on Wednesday, Oct. 5, 1921, 8:30 p. m. The program will include exhibition of equipment, methods and results of treatment, and moving pictures. All physicians are invited. The Naval Hospital is located east from the Brooklyn Navy Yard, corner of Flushing Avenue and Ryerson Street.

District Medical Meeting.—The fifteenth annual meeting of the fourth district branch of the Medical Society of the

State of New York was held in Schenectady, September 13, under the presidency of Dr. E. MacD. Stanton. Dr. Walter Lundblad, Sayre, Pa., read a paper on "Basal Metabolism," and Dr. William W. Howell, Boston, on "Primary Tuberculosis, Its Diagnosis and Extension." The present officers were all reelected for another year.

Voluntary Parenthood League to Hear Dr. Stopes.—The Voluntary Parenthood League announces a lecture by Dr. Marie C. Stopes of London to be held at the Townhall, New York, October 27. The patrons of the meeting include a number of noted authors and the following physicians: Drs. Henry P. DeForest, Maurice J. Exner, William F. Roby, William J. Robinson and Edwin H. Swift. The purpose of the meeting is announced as a preliminary step toward making birth control clinics in America practicable.

New York City

Infantile Paralysis Cases Increase.—The number of cases of poliomyelitis reported to the health department during the week ending September 24 was the largest recorded in any single week since the epidemic of 1916. There were sixty-nine cases reported, and of these nineteen were discovered as a result of a canvass of 7,000 homes by nurses of the department.

New York Scores Its Lowest Death Rate.—The mortality record of the week ending September 17 is the lowest ever experienced by the city of New York, there having been only 967 deaths recorded, or a death rate of 8.77 per thousand of the population. The next lowest death rate was that for the week ending July 17, 1920, which was 9 per thousand population, and the second lowest that of Sept. 20, 1919, which was 9.04.

Public Health Exposition.—A public health exposition will be held in Grand Central Palace, November 14, under the joint auspices of the health department and the American Public Health Association, which will hold its annual convention in this city at that time. The proceeds from the sale of tickets will be used to assist in defraying the expenses of the American Public Health Association and to establish nutritional clinics in New York City for the benefit of undernourished children.

Increased Dental Service for Schoolchildren.—The bureau of child hygiene of the department of health, with funds allowed for increasing its dental service, which became available, September 1, has appointed four dentists, six dental hygienists and eight nurses of the total quota allowed. The bureau was given sufficient appropriation to appoint five dentists on full time instead of nine on half time, eighteen hygienists and nine new nurses. It is planned to operate eight new clinics apportioned in the various boroughs, one being established in the borough of Richmond which, to date, has had no departmental service.

Infant Mortality Rate Falls.—The infant mortality rate for the first thirty-five weeks of the year, that is, the period ending August 27, was 76 per thousand children born, as against 91 for the corresponding period of last year. There is a reduction in the infant death rate from practically all causes, except congenital diseases. In contrast to this, a report issued by the International Health Board of the Rockefeller Foundation, entitled "Infant Mortality in New York City," calls attention to an infant mortality rate in New York City in 1885 of 273.6 per thousand children born. The rate in 1919 was 81.6.

Second International Congress of Eugenics.—This congress was held in the American Museum of Natural History, New York, from September 22 to 28, under the presidency of Prof. Henry Fairfield Osborn of New York. Many notable foreign scientists were in attendance, among them Major Leonard Darwin, son of Charles Darwin, and Dr. A. Barbara Dale, England; Dr. A. Govertz, Belgium; Dr. D. F. Ramos, Cuba; Dr. Don Arturo Scroggie, Chili; Dr. B. Feierabend and Dr. A. Sum, Czechoslovakia; Mr. Georg Bach, Denmark; Messrs. Lucien Cuénot, Lucien March and George Vacher de Loupouge, France; Dr. Jon. Alfred Mjoen, Norway; Dr. Ales Hrdlicka, Prague; Dr. Phya Medna, Siam; Dr. J. Varela, Uruguay, and Dr. N. D. Dakin and Dr. R. Ruggles Gates, Venezuela. In the numerous papers and discussions the outstanding point that continually received emphasis was that education and environment, contrary to the popular opinion, do not alter racial values. The speakers seemed to be pretty generally agreed that the admixture of poor stock with good does as much harm to the good stock as it benefits the poor. It was further emphasized that the great need is obviously for more light on the part of both citizen and scientist.

Examination of Food Handlers.—The *Bulletin* of the New York City Health Department for September 24 presents a report showing that during the last year a total of 16,484 food handlers were examined in the occupational clinics of the city, while 55,673 examinations of food handlers were made by private physicians during 1920. A comparison of the results of these examinations indicates that the private physicians are not contributing conscientiously to the protection of the public health from food handlers who may be affected with communicable disease. Of the 16,484 food handlers examined, 28 per cent. were found to present a physical defect of significant character. In the city as a whole, the ratio of food handlers with sputum positive for the tubercle bacillus was 278 per 10,000. If this ratio obtained among all food handlers in the city, there would be 19,275 such food handlers in the city of New York. In the city as a whole, 104 cases of active syphilis were excluded, giving a ratio of 65 per 10,000 food handlers. The Manhattan Occupational Clinic placed on probation sixty-six cases of latent or inactive syphilis in the course of the year, giving a ratio of 133 cases per 10,000. The ratio of active gonorrhea cases was 6 per 10,000. On this basis there are at least 450 male food handlers in this city so affected. There were 28 male food handlers with evidences of chronic gonorrhea. If this ratio is assumed to represent the prevalence of this condition among food handlers, we would expect to find 4,350 such cases among the food handlers of the city. In all, three active typhoid carriers were found among this group of food handlers. In addition, there were a number of different forms of parasitic skin affections, as well as one case of tonsillar diphtheria and one of scarlet fever.

NORTH CAROLINA

Personal.—Dr. David Russell Perry has been elected full-time health officer for Davidson County, to succeed Dr. Raymond B. Yokeley, who resigned to resume private practice.

OHIO

Mississippi Valley Conference on Tuberculosis.—At the conference held in Columbus, September 12-14, Dr. Robinson Bosworth, St. Paul, was elected president; Dr. Robert A. Patterson, Columbus, vice president, and Dr. Hoyt E. Dearholt, Milwaukee, was elected secretary treasurer.

Clinic for Crippled Children.—Clinics are being arranged, at state expense, for crippled children under the direction of Dr. Bert Chollett, Toledo, assisted by Dr. H. T. Thornberg. One of these clinics was held at Tiffin, with the cooperation of Fostoria and the county health board, September 22.

Health Conference.—The second annual conference on state health was held at Columbus, September 12-16. Dr. Clarence D. Selby, Toledo, was elected president of the Ohio Public Health Association, to succeed Dr. C. B. Bliss, Sandusky. Dr. Robert Patterson, Columbus, was elected secretary.

First National Meeting of the American Red Cross.—The meeting will be October 4-8, at Columbus. A pageant entitled "Historical Pageant of the Red Cross," which requires the services of more than 3,500 participants, including a chorus of 1,000 voices, will be given on two evenings of the convention. Participants at this pageant will be groups of overseas veterans, nurses and war workers, including a delegation from the Walter Reed Hospital at Wasington, D. C.

PENNSYLVANIA

Personal.—Dr. Walter Estell Lee, Philadelphia, has been appointed a member of the State Board of Medical Education and Licensure to succeed Dr. John M. Baldy.

Philadelphia

Personal.—Dr. Lawrence Webster Fox, ophthalmologist, who sailed for Hawaii in July, has returned to Philadelphia.

Horse Show to Aid Hospital.—The proceeds of the coming Bryn Mawr horse show to be held on the grounds of the Bryn Mawr Polo Club, September 28 to October 1 will benefit the Bryn Mawr Hospital.

City Ready to Aid $3,000,000 Hospital.—Indication was given by the Board of Surveyors at a public hearing in the City Hall, September 19, that approval will be given to the

request of the Society of Friends for revising lines and grades of several streets in Fox Chase so as to permit unified construction of the $3,000,000 Jeans Memorial Hospital.

RHODE ISLAND

Personal.—The Reconnaisance française, a bronze medal, has been awarded by the French government to Dr. Harriet A. Rice, a negress, for her services in French military hospitals during the war. Dr. Rice was a graduate of Wellesley College and the Woman's Medical College of the New York Infirmary for Women and Children.

SOUTH CAROLINA

Plan to Record Hospital Births.—At the regular meeting of the executive committee of the state board of health, Columbia, a resolution was adopted making available for inspection by the state health officer, or his representative, records pertaining to births in all hospitals in South Carolina.

TENNESSEE

Personal.—Dr. Marie M. Long has been appointed head of the department of child hygiene of the city health department, Memphis.

TEXAS

Meeting of the Pathological Society.—The second semiannual meeting of the State Pathological Society of Texas will be held in Galveston, Oct. 12, 1921, the morning session at John Sealy Hospital and the afternoon session at Medical College Library.

UTAH

State Medical Meeting.—At the twenty-seventh annual meeting of the Utah State Medical Association, held, September 13-14, at Salt Lake City, under the presidency of Dr. Robert R. Hampton, Dr. Albion L. Hewlett, San Francisco, read a paper on "Normal and Pathologic Reactions to Vestibular Stimulation," and Dr. Isaac H. Jones, Los Angeles, on "Effect of Quinin Sulphate on Auricular Fibrillation," with lantern slides. The following officers were elected for the ensuing year: president, Dr. Augustus C. Behle, Salt Lake City; first vice president, Dr. Frank K. Bartlett, Ogden; second vice president, Dr. George H. Hyde, Provo; third vice president, Dr. Lawrence C. Snow, Park City; secretary, Dr. William L. Rich (reelected), and treasurer, Dr. Frederick L. Peterson, Salt Lake City, also reelected.

VIRGINIA

Personal.—Dr. William Edward Brown, former first assistant to the director of the Catawba Sanatorium, Charlottesville, and connected with the tuberculosis work of the state board of health for the last five years, has been appointed superintendent and medical director of the Blue Ridge Sanatorium, the state institution for the care and treatment of tuberculosis, located near Charlottesville. He succeeds Dr. Walter C. Klotz, who resigned to accept a similar position at Johnson City, Tenn. In addition to his work at the sanatorium, Dr. Brown will also instruct students of the medical department of the University of Virginia in the diagnosis and treatment of the diseases of the chest.——According to a recent announcement, Dr. Allen Fiske Voshell, former resident orthopedist at Johns Hopkins Hospital, Baltimore, will assume charge of the department of orthopedic surgery at the University of Virginia Medical School and Hospital.

WISCONSIN

State Association of Industrial Physicians and Surgeons.—At the close of the state medical meeting, Dr. Clare F. Schram, Fairbanks-Morse, Beloit, was elected president; Dr. Robert A. Waite, International Harvester Company, Milwaukee, vice president, and Dr. Robert C. Fitzgerald, of the A. O. Smith Company, Milwaukee, secretary-treasurer.

CANADA

Medical Council of Canada.—It has been announced by the council that the autumn examinations will take place in Montreal and Halifax, October 18. Dr. Robert W. Powell, Ottawa, is the registrar.

Public Health.—The problem of the narcotic drug addict is the subject of a pamphlet issued by the Committee on Narcotic Drugs, and prepared by the Council on Health and Public Instruction. The Canadian government duly makes acknowledgment to the American Medical Association for the privilege of using some of this material for the Canadian profession.

Ontario Medical Association.—The district meeting of the association was held, September 21, at Peterboro, under the presidency of Dr. Frank J. Farley. Dr. Frederick W. Marlow, Toronto, gave an address on "Symptomatology and the Treatment of Some Gynecological Conditions," and the secretary of the association, Dr. Thomas C. Routley, on "Organization Progress in Ontario and Other Provinces."

University Medical School Limits Admission.—On account of lack of efficient facilities, the Medical School of Toronto University has decided to limit applications to 110 persons. These, with the students who are repeating the year on probation, comprise the first year. Selection of successful candidates was made on this basis: first, returned soldiers, with full standing; second, students with honor matriculation, and third, students with junior matriculation, and over 19 years of age. The university's registration in medicine, 1,106, is the largest in Canada.

GENERAL

Personal.—Dr. John Constas, associate surgeon of Georgetown University, Washington, has sailed for Europe to study immigration and assist in reorganizing, along American lines, the hospitals of Greece.

Five-Year Colleges Secure Further Recognition.—An official statement from the Conjoint Board of London states that students graduating from medical schools which have adopted the fifth year of the curriculum (the intern year) before granting the M.D. degree will be admitted to the final examination of that board without taking an additional year of study after graduation.

Safeguarding Child Workers.—A report has just been issued by the U. S. Department of Labor through the Children's Bureau describing the employment certificate system in Wisconsin. This report is the fourth of a series dealing with the administration of child labor laws, previous reports having summarized methods of administration in Connecticut, Maryland and New York.

Accidents in Quarries.—According to a report issued by the U. S. Bureau of Mines limestone quarries employed 43,151 men in 1920, an increase of 8 per cent. over the number of men employed in 1919. During the year ninety-six men were killed and 5,321 were injured, a total of thirty-one more deaths and 890 more injuries than during the previous years. The causes of such accidents were usually falls, slides of rock, injuries resulting from burns and accidents from electricity.

Meeting of American Academy of Ophthalmology and Oto-Laryngology.—The American Academy of Ophthalmology and Oto-Laryngology will present a study course in connection with the annual meeting to be held in Philadelphia, October 17 to 22, in which an effort will be made to set forth the accepted views of modern ophthalmology and otolaryngology. Admittance to the course will be by badge to be secured at the headquarters of the postgraduate committee. All communications relative to the course should be sent to the proper member of the committee, either to his home address or to the Bellevue Stratford, Philadelphia. The committee consists of Dr. Harry Gradle, Chicago, chairman; Dr. Meyer Wiener, St. Louis, ophthalmologist; Dr. Hanau W. Loeb, St. Louis, laryngologist, and Dr. W. P. Wherry, Omaha, general operations.

LATIN AMERICA

Hookworm in Guatemala.—During the year 1920, in the hookworm campaign being conducted under the auspices of the Rockefeller Foundation in Guatemala, there were examined 28,142 persons, of whom 18,311 had hookworm disease, 13,221 received the first treatment and 5,932 were cured.

Venereal Diseases.—Pursuant to the request of the president of Costa Rica, for municipal aid in a venereal disease campaign, the department of Nicoya has appropriated the sum of 1,000 colones (about $500).——The proceeds of certain taxes have been set aside at Quito, Ecuador, for an antivenereal campaign.

Colombia Invites a German Leprosy Expert.—The government of Colombia has authorized the director general of leper hospitals to bring a German leprologist to Colombia to study

the cause of leprosy and its prevention. This expert will submit recommendations as to the prophylaxis of the disease and make necessary arrangements for isolating lepers.——The government has ordered an issue of 100,000 pesos in special nickel coins for exclusive circulation in leper hospitals.

New Hospitals and Sanatoriums.—A new sanatorium has been completed in the town of Girardot, Colombia. It is intended to supply the needs of patients who used to go to Panama or elsewhere abroad for treatment.——A new institution called La Milagrosa Sanitorium has been opened at La Calzada del Cerro, Cuba, for the exclusive treatment of women.——A new surgical ward has been opened at the St. Francis de Sales Hospital, Haiti. New equipment has also been provided for the hospital laboratory. The Haiti section of the American Red Cross has opened a free dispensary at Port-au-Prince, Haiti.——The government of Panama has opened at Colón a free clinic for tuberculosis cases, and mothers and infants.

Monument to Carlos Finlay in Havana.—Notice has appeared in THE JOURNAL on several occasions as to a monument to Carlos Finlay recently unveiled in Havana. A photograph of the monument is reproduced herewith. It stands in the center of a park known as "Finlay Park" in which it is proposed to place also the busts of the other scientific investigators who, with Dr. A. Agramonte, confirmed the transmission of yellow fever by the mosquito. The other busts to be erected include those of Drs. Gorgas, Guiteras, Delgado and Lazear.

Monument to Finlay erected in Havana.

FOREIGN

Typhus Fever and Rabies in Spain. — At Herencia (Ciudad Real) there have been reported twenty cases of typhus fever. The health authorities are investigating the matter.——There have been reported cases of rabies in the province of Cádiz. So far there has occurred one death from the disease.

Sol Sanat.—Under this name a society has been organized in a Holland city for the purpose of aiding persons with surgical tuberculosis to get the full benefit of sun baths. Dr. H. Verploegh of Gravenhage is one of the officers, and the members of the society are contributing and collecting funds to supply facilities for heliotherapy and other forms of radiotherapy and educate the public in regard to the dangers and prophylaxis of tuberculosis.

Medical Papers Lost.—It is reported that the licensure certificate No. A-03070 issued by the California Board of Medical Examiners to Dr. Jay Randolph Charpsteen, a graduate of the University of California Medical School, May 11, 1921, has been lost. Instead of having lost a reciprocity certificate, as previously reported, we are informed that Dr. Claude C. Chick of Heppner, Ore., reports the loss of his diploma issued by the American Medical College, March 25, 1897. Licensing boards are advised to be on the lookout for these credentials since they may be presented by those not entitled to their use.

Far Eastern Association of Tropical Medicine.—The fourth biennial congress of the association was held in Batavia, Java, August 6-13, under the presidency of Dr. T. de Vogel, the chief health officer of the Netherlands Indies. This was the first international medical congress ever held in the Dutch East Indies. It was well attended, delegates being present from Japan, the Philippines, Straits Settlements, Federated Malay States, Formosa, India and Australia. To commemorate the event the Dutch government authorized the publication of a large volume giving the history of Holland's participation in the development of tropical medicine. Dr. A. E. Horn, general director of the medical services of Malaya, was elected president for the next two years. The 1923 meeting will take place in Singapore. Vice presidents were elected for the following countries: Federated Malay States, Dr. Richard Dowden; Straits Settlements, Dr. A. L. Hoops; Japan, Prof. S. Hata; Ceylon, Dr. Bridger; Siam, Prince Tharava; Philippines, Dr. Salvador Rosario; Hongkong, Dr. J. T. C. Johnson; Indo-China, Dr. M. L. R. Montel; Java, Dr. J. J. Van Lonkhuyzen; Borneo (Br.), Dr. Dingle; China, Dr. Wu Lien Teh; Australia, Dr. J. H. L. Cumpston; Macao, Dr. Jose Soares; Formosa, Dr. J. Hatori; India, Lieut.-Col. W. F. Harvey. The following resolution, dealing with the control of beriberi, was unanimously adopted:

WHEREAS, Beriberi is known to prevail extensively in the following countries: Netherlands East Indies, Japan, Malaya, Siam, Borneo, Philippines, Indo-China, Hongkong, China, and other territories in the Far East;

WHEREAS, There is enormous annual loss of human life, with corresponding invalidism and disability, due to deficient diet in the above countries, and whereas the deficiency is mainly due to the overmilling of rice, which removes a vital part of the essential food factors, and whereas, nothing has been put forward in the past ten years which disproves that beriberi cannot be controlled by substituting undermilled for polished rice in countries in which rice is the staple article of diet;

WHEREAS, It has been demonstated by Fraser and Stanton and others that a satisfactory standard of milling is the presence of a minimum of 4/10 of 1 per cent. of P_2O_5 (phosphorus pentoxid) in rice; therefore be it

Resolved, That this fourth Congress of the Far Eastern Association of Tropical Medicine considers it urgently desirable that the governments concerned should take action to discourage the use of rice which is below this standard; therefore, be it further

Resolved, That, with a view to taking united action, the Far Eastern Association of Tropical Medicine recommends the appointment of a commission to which each country is asked to send a delegate, which shall make recommendations as to the best methods of bringing beriberi under control.

To assist in the attainment of the above object it is proposed that the congress request each vice president to present these proposals to his government and that the general secretary-treasurer send official copies of these resolutions to the countries concerned. If favorable action is taken, the governments are asked to communicate with one another as to the place in which such commission should sit.

VICTOR G. HEISER, Chairman.

Control of Narcotic Drugs in English Hospitals. — In enforcing the British Dangerous Drugs Act, which went into effect September 1, special regulations have been found necessary for hospitals. As it was not possible to formulate regulations applicable to all institutions, hospitals have been divided into three classes, viz., institutions in which the dispensary is in charge of a qualified pharmacist, those having no qualified pharmacist but a resident medical officer, and those having neither. In hospitals of the first class, supplies of the prescribed drugs are in charge of the qualified pharmacist. Ward supplies are in charge of a nurse, who is responsible for their use and who secures her supplies from the dispensary by written requisition. Medicines for patients must be ordered in writing by the visiting physician or house physician on the history sheet, which must be sent to the dispensary and a record made on it when the prescription is filled. A separate prescription must be recorded each time that the preparation is made up for the patient. Bona fide public institutions, approved by the secretary of state, which do not employ a qualified pharmacist may be granted an exemption, provided they employ a dispenser who has had three years' experience. In institutions of the second class, the drugs are in charge of the resident physician. Stock preparations must be kept in a locked cupboard by the nurse in charge, who can secure them only on written requisitions. Medicines for al lpatients must be ordered by the physician on the patient's history sheet and a record kept, showing the amount. Hospitals of the third class must present orders for drugs signed by one of the attending physicians. Drugs are in the charge of the matron, who issues them under direction of the attending physician. In the case of medicines ordered for individual patients, the prescription must be given by a doctor and made up by a duly qualified pharmacist. In all cases a record of all drugs received and dispensed must be kept. Wholesale dealers are required to pay a license fee of £5 for dealers in one drug only, and £2 for each additional drug dealt in. If a manufacturer wishes to deal in raw opium, medicinal opium, cocain, diamorphin and morphin, the annual cost would be £13.

Deaths in Other Countries

Dr. **Ernest Dupré,** professor of mental disease at the University of Paris and one of the leaders in modern psychiatry, aged 59. He has published works on self-accusers, the value of testimony, poisoners, organic psychopathies, the psychology of hysteria, etc., and was on the editorial staff of the leading French psychiatric journals. His reports as medicolegal expert in certain famous lawsuits are regarded as classic.——Dr. **J. Bach y Cortadella** of Madrid, retired medical inspector of the Spanish army.——Dr. **Franklin Grout** of Rouen, at one time connected with the Passy sanatorium for mental diseases but long retired from practice.——Dr. **F. Schwarz,** an otologist and laryngologist of Capetown.——Dr. **Bercial,** surgeon in the Spanish army, killed recently in the Morocco campaign.——Dr. **N. A. Cholodkowsky,** professor emeritus of zoology at the University of Petrograd, known for his research on creeping disease.——Dr. **K. Hagenbach-Burckhardt** of Basel.——Dr. **Soulié,** professor of topographic anatomy at the University of Toulouse.

Government Services

Public Health Service Men to Veterans' Bureau

It is announced that 277 medical officers of the Public Health Service have been detailed to the Veterans' Bureau. Of this number thirty-nine are medical officers in Washington, D. C., who have been detailed to the Veterans' Bureau headquarters in that city; the remaining 238 are medical officers in the field division of the Public Health Service throughout the United States. The Sweet law recently enacted by Congress creating the Veterans' Bureau gives specific authority for the detail or temporary transfer of medical officers from the Public Health Service. They are still officers of the latter service and their assignment to the Veterans' Bureau does not change their status. Some uncertainty has existed among the field officers of the Public Health Service because these so-called transfers have been made, but assurances are definitely authorized that the Veterans' Bureau will use officers of the Public Health Service in the hospital work and dispensary facilities which have been built up during the last two years by the Public Health Service in its program for the care of ex-service men. In the medical care and treatment of the beneficiaries of the Veterans' Bureau, it is apparent that a great many doctors will be needed for many years to come. The Sweet law has made wise provision for the administration of this work by authorizing the transfer or temporary detail of doctors in the Public Health Service for the continuation of this program.

Secretary Weeks Presents Opinion on Disabled Emergency Officers

Secretary of War Weeks has issued a statement declaring that disabled emergency officers, many of whom served in the Medical Corps during the war, do not belong on the retired list of the Regular Army with the pay of retired officers. The statement represents the personal opinion of the Secretary and is made in opposition to the stand taken by the American Legion. A bill is now in the Senate giving emergency officers disabled in the war the same privileges as the regular commissioned officers of the Army retiring because of injuries. The Secretary in explaining his position said that the contract made by the government with Regular Army officers guaranteed them retirement pay because of conditions of the service, which disqualified them from making adequate provision for old age or their dependents, while the contract with emergency officers was an entirely different matter, and placing them on the retired list would merely load it up. There are now eligible for retirement under the plan urged by the American Legion some 3,000 emergency officers, of which number several hundred are former medical officers, and the number would constantly increase as the years passed. Whatever Congress might decide to do with these men, Secretary of War Weeks added, they should not be placed on the retired roll of the Army, which was created for an entirely different purpose.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 29, 1921.

Healthy London

The annual report on the health of London during 1920 by Dr. W. H. Hamer, health officer, has just been published. The facts set out are not only important, but more than usually interesting. The birth rate rose from 18.2 to 26.4 per thousand. The death rate fell to 12.6, the lowest ever recorded. The infant mortality was 76, compared with 80 for England and Wales as a whole, and 85 for New York, the only other great aggregate of population comparable with London. These rates relating to so large a population must give pause to those who advocate on grounds of health a "return to the land," and cause hope to spring in the breast of even the most pessimistic of the 4½ millions whose vocations compel them to live or work within a few miles of St. Paul's. A death rate of 12.6, if maintained at that level for a series of years, would entail an average duration of life of the fourscore years deemed some thousands of years ago to be attainable only "by reason of strength," and far exceeding the expectation of life of the first life table of William Farr, and of all the later life tables, too.

The Census

The preliminary report of the census enumeration, just published, shows that while the population of Great Britain during the last ten years increased by nearly two million, the rate of increase was the lowest yet recorded in any intercensal period. The slowing down of the numerical expansion of the nation must be largely attributed to the influence, direct and indirect, of the war. There was a direct loss of 628,000 lives in active service, and indirectly the war checked the growth of the population by influencing a progressive decline of the birth rate between 1913 and 1918.

The population of Great Britain, June 19 this year, was 42,767,530, an increase on the 1911 figures of 1,936,134. This increase was at the rate of 4.7 per cent. as compared with 10.4 for the period 1901-1911, which was lower than the rate in any previous decade. For the three divisions of Great Britain the respective increases were: Wales, 9 per cent.; England, 4.8 per cent., and Scotland, 2.5 per cent. The population of England on census day was 35,678,530, as compared with 34,045,290 in 1911 and 11,281,957 in 1821. For Wales the figures were 2,206,712 in 1921; 2,025,202 in 1911, and 718,279 in 1821. For Scotland they were 4,882,288 in 1921; 4,760,904 in 1911, and 2,091,521 in 1821. The 1921 population of Great Britain was made up of 20,430,623 males and 22,336,907 females. The proportion of females to males rose from 1,066 in 1911 to 1,093 in 1921. This preponderance is greatest in England, where there are 1,101 females to each 1,000 males.

The population of Greater London is given as 7,476,168, an increase of only 3.1 per cent., as compared with 10.2 per cent. in the preceding intercensal period. After London, the ten towns in England with the largest populations are: Birmingham, 919,438; Liverpool, 803,118; Manchester, 730,551; Sheffield, 490,724; Leeds, 458,320; Bristol, 377,061; West Ham, 300,905; Hull, 287,013; Bradford, 285,979, and Newcastle-on-Tyne, 274,955.

Complete empire figures are not available, but in the Indian Empire the population rose in the years 1911-1921 by nearly 4,000,000, to 319,075,132. In the Australian commonwealth there was an increase by nearly a million, to 5,426,008. New Zealand without the Maoris showed an increase of more than 200,000, to 1,218,270, and the European population of the

Union of South Africa had an increase of about 150,000, to 1,521,635. The census of 1921 was the first taken since 1821 without the inclusion of Ireland, because of political difficulties. The population of the United Kingdom in 1911 was 45,221,615, and to this total Ireland contributed 4,390,219. Assuming that the Irish population—a declining one since 1841, when it stood at 8,196,597—is about 4,200,000 at the present time, the new total for the United Kingdom would be in round figures about 47,000,000. Comparison between the rate of growth of the population of Great Britain and that of European countries is possible in only a few instances. The population of France, inclusive of three new provinces, was given in March this year as 39,194,550, as compared with combined figures for France and Alsace-Lorraine ten years previously of 41,476,272. In Sweden the present population of 5,904,292 shows an increase of 8.17 per cent. over the figures of ten years ago. The United States, with a population of 105,710,620, has registered an increase in the decennial period of 14.9 per cent. In Switzerland the population in the past ten years has increased by 3.4 per cent.

Phthisis Mortality

Dr. Hamer has many interesting observations on the influence of the migration from the country on London's health statistics—particularly on the tuberculosis death rate. He hazards the "rough guess" that nearly a sixth of the recorded phthisis mortality of London is a mortality of men and women (mostly men) who have not come to London until after early middle life. London draws in, as it were, like a vortex, the enterprising and ambitious girls and boys from miles around. But, perhaps even more important from the phthisis point of view is the fact that the lure of London continues to be exerted in later years. At the higher ages there are, however, marked distinctions and differences *qua* sex and *qua* quality. The female immigration apparently reaches its maximum at an earlier age than the male, and the male curve continues at a higher level long after the female curve has noticeably declined. Moreover, as the age of the immigrants is increased their quality becomes poorer, and this is particularly the case in the males. The young people are conspicuous by their absence from the phthisis death returns, partly because they represent in large measure healthy stock from outside, partly because if they do succumb to the influence of the London environment they often leave and die outside London. The old persons, on the other hand, men for the most part, who die in London have in many instances drifted there after contracting phthisis. Finally, the middle-aged patients do succumb in considerable numbers in London itself to the London environment, mainly for the reason that when they fail they are more likely than the young folk and the elderly women to remain in London to die, partly also for the reason that at the latter middle ages (among men) the figures, as has been seen, are swelled by immigrants from the country districts for miles around.

Nutrition of Children

In spite of the decreased general death rate and the low infantile mortality, there were some features in 1920 that were disquieting. During the war years there was a notable improvement in the general physical condition of the children. In 1919, however, there was a perceptible deterioration of nutrition especially in infants entering on school life, in whom it might be expected that the earliest reaction to adverse circumstances would be seen. This has continued, and is now shown in boys and girls at all ages, but especially in the 8-year-old group, in which the greatest amount of undernourishment is likely to be found. It reflects the effects of combined high prices and unemployment. The significance of the figures is underlined by their close correspondence with the numbers of children requiring to be fed at school. There is serious cause for concern at the fact, for instance, that 9 per cent. of the boys at the age of 8 are marked as undernourished and that the number so marked has increased during the last two years.

Children on Barges

A committee appointed by the ministry of health has made a report on the conditions of children in canal barges. So far as health, cleanliness, morality, feeding and clothing are concerned, the bargee and his family are found to be fully equal, if not superior, to town dwellers of a similar class. Fifty per cent. of the children are born on the boats, yet an experienced nurse says she has never known of a mother dying in childbirth, and has known only one case of a child being born dead. But the boat children are scandalously undereducated. The number of children of school age living on the boats is estimated at 1,000, and investigations show that more than 85 per cent. of them are almost uneducated. Their only opportunities for schooling occur when the boats are tied up for loading or discharging, and as many of the parents are unable to read or write they care little that their children should make full use of even these opportunities. Half of the children do not put in twenty half-day attendances in the year. The committee recommends that, after a period of grace of a year, to enable arrangement to be made, children of school age should be prohibited from living-in on canal boats during school terms. It is also recommended that the owners of canal boats should be required to take out annual licenses, in order that more accurate information may be available as to the number of boats used as dwellings, and to insure regular inspection.

Death of the Danish Minister from a Wasp Sting

M. Castenskiold, Danish minister in London, returning home from playing golf, complained of having been stung by an insect, presumably a wasp. Swelling appeared in the nape of his neck, and he was soon in great pain and was forced to take to bed. He rapidly became worse in spite of the constant attentions of several specialists. He died at the end of a fortnight.

PARIS

(From Our Regular Correspondent)

Sept. 2, 1921.

Statistics on Vaccination in Paris

Before the council on public health, Dr. Roux, director of the Pasteur Institute in Paris, recently made an interesting report on vaccination in Paris. In 1920, the vaccination stations of the city of Paris performed 192,238 inoculations. These figures are 34,742 less than those for 1919, but are higher than for the years immediately preceding the war. If we note that during 1919 there were 126 cases of smallpox in Paris and that they gave rise to 32,000 vaccinations in the homes and 54,459 supplementary inoculations in the schools, we can easily account for the difference between the figures for 1919 and those for 1920. According to information furnished by Dr. Guilhaud, head of the vaccination service, the vaccinations for 1920 were distributed as follows: charity organizations, 19,029; maternity wards in hospitals, 23,147; wards of the state, 3,602; hospitals and homes for the poor (inpatients), 40,379; hospitals (outpatients), 13,161; schools of the city of Paris, 65,482; charitable institutions (city of Paris), 8,459; departmental institutions (homes), 2,026; secondary schools, 7,270; Academy of Medicine, 655; Pasteur Institute, 5,376, and domiciliary vaccinations, 3,652. In 1920, the registered births in Paris numbered 55,813, an excess of 17,192 over those of 1919. Of the 55,813 new-born, 30,972 were vaccinated at the municipal vaccination stations. If, from the total number of births, we deduct the number of deaths that

occurred during the first three months of existence (3,359), the number of infants placed out to nurse and of those vaccinated at home, we must admit with Dr. Guilhaud that a very small number of new-born in Paris escape vaccination. The percentage of successful initial vaccinations at the Tenon Maternity Hospital was 99.8 per cent., and at the Hôpital de la Maternité, 89 per cent. Since the war, vaccinations are made in the schools of Paris at two different periods of the year: at the opening of school, in October, and just before the closing of school, in June. During the October period, children 7 and 11 years of age are revaccinated; also, without distinction as to age, those for whom their parents desire inoculation. Of 50,249 pupils inoculated in October, 46,607 have reached their eleventh year. Of 23,739 boys, 10,906 were successfully vaccinated, and of 22,868 girls, 10,185 showed positive results. In June, 15,233 children who had not reacted the previous October were revaccinated, and of this number 4,681 presented a vaccinal lesion. In the primary schools of the 2,309 inoculations in children less than 6 years old, 1,349 were successful. These figures, gathered from various schools, give further proof of the necessity of revaccination. A proposed amendment to the law of 1902 for the protection of public health, taking account of the observations made in the schools of Paris and the proposals of the commission for the improvement of the bureau of public health, prescribes revaccination at the ages of 6, 13 and 21. During 1920, six cases of smallpox were observed in Paris, from which no epidemic resulted and only one death ensued. In two instances the disease was brought in from the outside; in the four other cases it developed in residents of Paris, and it was impossible to discover where they contracted the disease. This proves that in a large city like Paris, in which the movement of population is very great, there are always smallpox bacilli ready to develop, even though there is no epidemic, unless a large majority of the population has been immunized. Therefore, we must never cease to speak in favor of repeated reinoculations. Professor Letulle stated that, if we exclude maternity hospitals, the total number of vaccinations performed in the inpatient departments of hospitals will not greatly exceed 40,000. It is evident that the number of patients admitted is far in excess of these figures. He is of the opinion that it would be expedient to ask the bureau of public charities to see that vaccinations are made in the wards periodically, and that vaccination be made compulsory if possible. Dr. Netter supported Letulle's suggestions. He recalled that formerly—especially in children's hospitals—the medical personnel had authority to perform vaccinations whenever they deemed it necessary, and he asked that this method be again put in practice. Dr. Roux directed attention to the importance of Dr. Netter's suggestion, as it was not rare for students to leave school without having performed a single vaccination. He added that, whatever method of procedure is employed, compulsory vaccination should be established in hospitals, otherwise no results, or at least no adequate results, will be secured.

Franco-American Collaboration in Science

In several of my letters to THE JOURNAL I have noted the increasing tendency toward the development of reciprocal scientific relations between France and the United States. Further evidence of this tendency is furnished by two recently published fascicles of the Traité de Médecine, now in course of publication (Masson et Cie, publishers) under the editorship of Prof. G.-H. Roger, dean of the medical department of the University of Paris; F. Widal, and Pierre Teissier. Alongside of articles signed by French professors, we find several from the pens of American writers. Thus, we read in Part 3 an interesting article on trench fever by Richard P. Strong, professor of tropical medicine in the medical department of Harvard University, and an article on yellow fever by A. A. de Azevedo Sodré, professor of clinical medicine at the School of Medicine of Rio de Janeiro. In Part 7 a chapter on infantile scurvy is by Dr. G. Aráoz Alfaro, professor at the School of Medicine of Buenos Aires.

MEXICO

(From Our Regular Correspondent)

Sept. 4, 1921.

Etiology of Pinta

The pinta, or mal de los pintos, is an endemic disease which prevails in some of the low and hot lands in this country. While several investigations have been made as to its cause, so far none of the conclusions reached by the workers have received medical endorsement. Recently Dr. J. González chose this subject for his inaugural thesis as member of the Academy of Medicine. As he was not willing to confine himself to speculations, he decided to conduct some investigations of his own in the Rio Balsas region. While González' conclusions may not be definitely accepted because of the small number of patients studied and his inability to produce the disease in animals, they deserve mention in order that they may be either proved or rejected in the future. It seems that he found a fungus in the scales of the blue and red "pintos" (spots), besides the skin sections in the dermis. When cultures are made they cause a pigmentation. This fungus belongs to the genus *Penicillium*, its species being as yet undetermined. González assumes that the mosquito is the vector of the parasite. This is not unlikely in view of the distribution of the disease along borders of rivers where this mosquito would naturally find its habitat. Another worker had previously connected the pathogenesis of pinta with a bacillus, but in view of the clinical analogies between our "pintos" and the "caratejos" of Colombia it seems more likely that pinta is a mycosis somewhat similar to "caraté."

Antivenereal Campaign

A free evening dispensary has been opened for the treatment of venereal disease. This dispensary is the first of the eight projected by the public health department, and also the first official one. Some time ago there was a free dispensary for the administration of arsphenamin to indigent patients, but it was established by a newspaper and afterward dispensaries were also opened by the Spanish Welfare Society and the Venereal Prophylaxis Society, the latter being still in operation. The authorities had not given, so far, the importance it deserves to the scientific treatment of these diseases from a public health standpoint. The only thing lacking now is that the public health department should exercise its authority against the quacks who manufacture on such a large scale alleged remedies for syphilis, gonorrhea and chancroids. These so-called remedies are undoubtedly a very important factor in the spreading of these diseases.

Epidemic Diseases

No case of human plague was reported at Tampico during the month of August; during the month of July there were only two cases. As antiplague measures are being pushed, this important Atlantic port may be considered free of danger. At Manzanillo, a port on the Pacific Coast, there were reported in August ten deaths attributed by the port authorities to so-called "hemorrhagic malaria." It seems, however, that they were caused by yellow fever, as two patients who left Manzanillo and were isolated at Mazatlán as suspected cases died there, and postmortem lesions were observed which suggested the latter disease. In view of the discrepancy in the reports and in order to conduct a campaign against yellow fever, the public health department sent Dr. J. G. Casasús to Manzanillo to investigate the situation.——At

Payo Obispo, a port on the Carribbean Sea, there was also reported a death from yellow fever. This seemed to originate in the English colony, Belice, since three cases of the same disease had occurred there. In order to investigate the situation, Dr. E. I. Vaughn of the International Health Board of New York and a member of the Yellow Fever Commission, who happened to be at Túxpam, Vera Cruz, left immediately for British Honduras. The sporadic cases in different parts of this continent seem to indicate the existence of endemic foci where the disease is overlooked because of its benign form. They show what vast efforts are required to eradicate yellow fever from the New World.

New Journal

There has been issued the first number of the *Revista Médica*, a monthly, published by the students of the Medical School of Morelia, Michoacán, and edited by a group of professors of the same school. The subscription price is three pesos ($1.50 a year).

Personal

Dr. J. Huici, once a prominent member of the Superior Board of Health and co-worker of the late Dr. Licéaga, died, August 24.——Gen. T. C. Lyster, director of the International Commission Against Yellow Fever, has returned to Mexico on account of the yellow fever cases previously mentioned, and is now visiting Mazatlán, Sinaloa and Manzanillo. Dr. Lyster will study the situation and suggest to the Mexican authorities a plan for pushing the campaign against the disease.——Dr. A. Caturegli has been suggested for minister of Mexico in Berlin; this physician had been appointed minister to France, but his appointment was afterward canceled.——Dr. J. M. Albiñana, associate professor of the Medical School of Madrid, has been commissioned by the Spanish government to study Aztec medicine in Mexico, and has already arrived here, receiving many attentions from the Spanish colony.

Monument to Dr. Licéaga

A statue will be erected in a public square in honor of the late Dr. Eduardo Licéaga, prominent as a physician, and a sanitarian of international reputation. The funds are being collected by public subscription, and a good sum has already been received. The president of the republic gave $3,000 out of his own pocket. When the monument is inaugurated, the department of public health will issue a pamphlet containing the speeches delivered at Dr. Licéaga's funeral services and at other meetings held in his honor.

BERLIN

(From Our Regular Correspondent)

Sept. 2, 1921.

Movement of the Population in the German Empire

During 1919 and 1920, as we learn from data recently published by the government statistical bureau, the number of marriages in the German empire exceeded, by a considerable margin, the figures for the prewar period. This condition is explained primarily by the fact that many marriages that could not be entered into during the war were contracted during the months following the war. Whereas, before the war, an average of half a million marriages were entered upon in Germany (exclusive of Alsace-Lorraine) every year, the number of marriages concluded in 1914 was only 450,648, falling then in 1915 and 1916 to 273,853 and 274,396, respectively. In 1917 the number rose again to 308,446 and in 1918 to 352,543. Thus, in the five years from 1914 to 1918, inclusive, almost half a million marriages less were contracted than would normally have been the case. However, this notable falling off in marriages during the years of the war was compensated for, in the main, during 1919 and 1920; for in these two years the number of marriages reached the high figures of 842,787 and 851,508, respectively. Whereas in 1913 there were only 7.7 marriages to 1,000 inhabitants, in 1920 there were 14.8. Normally, forty marriages to 1,000 inhabitants could have been expected during the five years of the war, but, instead, only 25.1 marriages were entered upon. Eighty-two per cent. of the decrease has been made up during the last two years. Owing to the war, the difference in the age at marriage has changed markedly for both men and women. In Bavaria, for example, before the war, the husband was, on an average, 2.6 years older than the wife; now the age of the husband exceeds by three years that of the wife. Similar figures may be noted in other parts of the country. In this connection it is noteworthy that there has been a great increase in the number of widows who remarry. For example, in Bavaria, before the war, 6.9 per cent. of all women entering into the married relation were widows; in 1919 there were 13.8 per cent. widows. The war, as is well known, caused a great decrease in population, not only by reason of the rapid increase in mortality but also on account of the considerable decrease in the birth rate. Not only during the war, but also during the first few months after the war, the mortality rate in Germany took an upward turn, not only as regards adults, but children as well. The increase in mortality was due, on the one hand, to the losses of war and, on the other hand, to the inadequate nutrition. It is estimated that to the latter cause alone may be ascribed 700,000 deaths, occurring mainly during the last two years of the war. Figures from the official bulletins show the great decrease in births during the war period. In 1914, the number of children born was 1,830,892. In 1915, the number had fallen to 1,040,209 and in 1917, to 939,938. In 1918, the number had risen again to 956,251. In place of the normal 8,950,000 births in the period from 1914 to 1918, we find only 4,550,000 recorded, which signifies a loss of 4,400,000 due to the war. In 1919 the total number of children born was still about 400,000 below normal, as may be seen by referring to the average figures for the prewar period. Not until 1920 was the number of births again around normal, the records showing 1,512,162 births or 27.1 to every 1,000 inhabitants, as compared with 1,707,834 births, or 28.5 per thousand inhabitants in 1913, in which connection it should be noted that for 1920 no statistics are available for Mecklenburg-Schwerin and Mecklenburg-Strelitz, and only partial statistics for Wurttemberg. The number of deaths in 1920 was 888,795; that is, there were 16.3 deaths to every 1,000 inhabitants, the mortality for 1919 having been 16.1 per thousand. The last year before the war (1913) showed a mortality of 924,919, or 15.8 per thousand inhabitants. Especially during the first three months of 1920 the mortality rate was very high. More particularly, diseases of the respiratory organs and influenza exacted many victims during this period. In Berlin, more than a third of all deaths; namely, 37.7 per cent., were due to diseases of the respiratory organs, whereas during the first quarter of 1913 only one seventh of all deaths in Berlin were ascribable to such causes. During the last three quarters of 1920, the mortality rate fell considerably, having been 14.9, 14.5 and 15.4 per thousand inhabitants, as over against mortality rates of 19.9, 22.0, 19.7, 20.8 and 25.1 for the five-year period from 1914 to 1918, inclusive. The year 1919 showed a slight excess of births over deaths and the year 1920 a still greater excess.

Form in Relation to Sex

Before the Berlin Society for Neurology and Psychiatry, Dr. Arthur Weil recently delivered a lecture based on a series of investigations that he has been conducting on the physical body as an expression of the constituted sex. Weil found that, whereas in a normal man the relative proportion of the length of the upper part of the body to that of the

lower was, on the average, as 100 to 95, and in a normal woman as 100 to 93, these body proportions in sexual variants, especially in homosexual men and women, were just the reverse, the proportion of the length of the upper part of the body to the lower, in both men and women, being as 100 to 108. Likewise, the relation of shoulder breadth to breadth of hips is also distinctly different. Whereas in a normal man this proportion was found to be as 100 to 81, and in a normal woman, owing to her hips being much wider, as 100 to 92, Weil noted in homosexual men and women the remarkable fact that in the two sexes the proportion was almost identical, the average proportion being as 100 to 86 and 100 as to 88, respectively. An extensive comparison of statistical data yielded the result that this peculiar fact was not due to accident but rested on a biologic law, as it were. Weil's discovery seems to confirm the theory of intermediate sexual gradations as proposed by Dr. Magnus Hirschfeld twenty-five years ago, according to which there are a large number of so-called sexual transitions between the male and the female sex, both as regards physical and mental characteristics. In addition to the hermaphrodites proper, he recognizes four further groups: the androgyns, who in their general physical qualities constitute a combination of masculine and feminine sex characters; the "transvestites," who in their external appearance, more especially in dress, affect the appearance of the opposite sex; and the homosexual and the metatropic human beings—men and women—who are drawn toward persons of their own sex—men with feminine characteristics who become enamored of women of masculine type, and vice versa.

Compulsory Physical Training

The council on physical education, which was chosen by the government to deal with the question, has drafted a bill in regard to the compulsory physical training of youth, which contains, among others, the following provisions: 1. Every citizen of the German empire, from the beginning of school age until he reaches his majority, shall participate in exercises for physical training. 2. Facilities for the performance of this duty shall be furnished by the institutions for public instruction, in which physical training shall be adopted into the regular course of instruction and constitute a part thereof. 3. This duty may be performed also in gymnastic clubs and in clubs devoted to various forms of sport, provided they have been recognized by the superior administrative council as conducive to the public welfare, or by participation in regular exercises and contests that have been organized by the empire, the several states, communal associations, communes or public institutions; for example, higher institutions of learning, of all kinds. 4. Until the completion of the twenty-fifth year of a German citizen, the bestowal of testimonials with reference to examinations absolved and in regard to qualifications for any given position or employment; likewise the granting of the right to practice any profession of any kind (including attestations, concessions, etc.) on the part of the empire or the several states, the communes or the public institutions, shall take place only on presentation of a certificate containing satisfactory evidence as to the fulfilment of the duty of participation in physical training.

Death of Dietrich Gerhardt

Professor Gerhardt, the director of the Würzburg Innere Klinik, died suddenly, during a journey from Berlin to Stuttgart, at the age of 55. In the field of lung and heart diseases he contributed many valuable treatises. He was the son of Carl Gerhardt, and suffered from the constant comparison that is always applied to the sons of great men. Like his father, Dietrich Gerhardt was distinguished by his simple, upright character, holding himself aloof from all forms of ostentation.

Marriages

Charles Hayden Phillips, Wilkes-Barre, Pa., to Miss Joyce Marjorie Whineray of Neston, England, at Neston, August 3.

Alfred Ernest Lange, Rochester, Minn., to Miss Ruth Arvilla Wedge of Zumbrota, Minn., September 15.

Thomas Morcom, Seattle, to Miss Ruth Imboden of Wichita, Kan., at San Francisco, September 8.

Laurence Matthew Marley, Chicago, to Miss Mary Kathryn Conroy of Beloit, Kan., September 1.

Willard Boyden Howes, Detroit, to Miss Esther Marian Lewis of Traverse City, Mich., September 21.

Roy Nelson Reuber, Klemme, Iowa, to Miss Gladys Marie Wichman of Garner, Iowa, September 15.

William McMicken Hanchett, Chicago, to Miss Alice Mark of Lake Forest, Ill., September 17.

William Howard Hailey, Hartwell, Ga., to Miss Helen McClure of Atlanta, Ga., September 8.

Claude D. Thompson, Lexington, N. C., to Mrs. Frances M. Clark of Richmond, Va., July 11.

Sigfred Engh to Miss Nora Melvian Lerstad, both of Cottonwood, Minn., September 4.

George DeReyna to Miss Marguerite Tujague, both of New Orleans, September 19.

Cyrus Walford Anderson to Miss Juanita Fruth, both of Denver, September 22.

James J. Arroyo to Miss Denise Castell, both of New Orleans, September 7.

Laurence C. Cook to Miss Vena Edith Calyton, both of Denver, September 3.

Cyrill G. Sidney, Ohio, to Miss Helen Hayward of Baltimore, September 12 .

Arnold P. Gruenhagen to Miss Floy Brown, both of St. Paul, in September.

Grover Penberthy, Detroit, to Miss Elizabeth Wardner of Boston, July 16.

Deaths

Walter Ruffin Ashe ✦ Blasdell, N. Y.; New York University Medical College, 1888; member of the Academy of Medicine, Buffalo; on the staff of the Polyclinic Medical School and Hospital, New York, 1889-1891; formerly resident physician New York City Hospital for Insane and the Bloomingdale Asylum; president and medical superintendent, Maplewood Sanatorium, Lebanon, Ohio; house physician Demilt Dispensary, New York; died suddenly, August 30, from heart disease, aged 56.

Charles DeWitt Conkey ✦ Duluth, Minn.; Rush Medical College, Chicago, 1882; member of the Medical Society of the State of Wisconsin; specialized in ophthalmology, otology, laryngology and rhinology; member of the Obstetrical Society of Boston; died, September 8, in Los Angeles, following an operation for gallstones, aged 65.

Lewis H. Gundry ✦ Relay, Md.; College of Physicians and Surgeons, Baltimore, 1890; member of the Maryland Psychiatric Society; member of the American Medico-Phychological Association; specialized in neurology and psychiatry; superintendent and owner of the Relay Sanitarium; died, September 15, after a long illness, aged 53.

John Bull Hench ✦ Hinsdale, Ill.; Rush Medical College, Chicago, 1883; practitioner for forty years in Hinsdale; for several years instructor in medicine in the medical department of the University of Illinois; member of exemption board during the World War; died, September 17, from cerebral hemorrhage, aged 66.

Edith Eareckson ✦ Baltimore; Women's Medical College of Baltimore, 1893; postgraduate course in Berlin; member of the Medical Society of the United States; the Medical Chirurgical Faculty of Maryland; the Baltimore City Medical Society; died, September 19, from a complication of diseases, aged 55.

✦ Indicates "Fellow" of the American Medical Association.

Frederick Seely Long, Sr., San Francisco; New York University Medical College, 1881; veteran of the Civil War; member of the San Francisco board of health, 1891-1905; member of the San Francisco Clinical Society; chief surgeon of the Buena Vista Sanatorium; died, September 19, aged 66.

Walter John Whitehouse, Marcus Hook, Pa.; Medico-Chirurgical College of Philadelphia, 1905; attached to the Marcus Hook quarantine station since 1910; major, M. C., U. S. Army, during the World War; died, September 19, at the Chester Hospital, from chronic nephritis, aged 39.

James Alexander Black ✠ San Francisco; Kentucky School of Medicine, Louisville, 1892; Long Island College Hospital, Brooklyn, 1893; specialized in ophthalmology, otology, laryngology and rhinology; member of the Pacific Coast Oto-Ophthalmological Society; died, September 19, aged 52.

Abraham J. Kesler, Fort Wayne, Ind.; Fort Wayne College of Medicine, 1886; member of the Indiana State Medical Association; formerly coroner of Allen County; member of the state board of health; died, September 15, from cerebral hemorrhage, aged 59.

Lloyd Henry Brannon ✠ Hayti, Mo.; St. Louis College of Physicians and Surgeons, 1915; specialized in pediatrics; was shot through both lungs, by E. S. Jimmeson of Hayti, and died in the Baptist Hospital, September 15, aged 36.

Joseph Reed Luten, Fulton, Ky.; Tulane University of Louisiana School of Medicine, New Orleans, 1868; Civil War veteran; member of the state legislature, 1881; died, September 11, from a complication of diseases, aged 78.

Samuel B. Whittington, New York; Missouri Medical College, St. Louis, 1887; since 1898 head of the Sprague Institute, New York; died, August 15, at his summer home in Kew Gardens, L. I., from tuberculosis, aged 52.

James A. Stafford, Newcastle, Ind.; Physio-Medical Institute, Cincinnati, 1867; for twenty years president of the Physio-Medical College of Indiana, Indianapolis; died September 13, from cerebral hemorrhage, aged 81.

Robert H. Mason, Rochester, N. Y.; McGill University, Montreal, 1896; member of the Medical Society of the State of New York; on staff of the Park Avenue Hospital, where he died, September 12, aged 52.

John F. Cully, Bainbridge, Ind.; Rush Medical College, Chicago, 1880; member of the Indiana State Medical Association; died, September 14, from cerebral hemorrhage, aged 68.

Samuel R. Peacock, Ladago, Ind.; University of Buffalo, N. Y., 1892; member of the Indiana State Medical Association; died, September 12, from cerebral hemorrhage, aged 53.

Franklin Pierce Warner, Canandaigua, N. Y.; New York University Medical College, 1881; member of the Medical Society of the State of New York; died, August 30, aged 69.

Madison D. Hull, Bloomington, Ill.; Louisville (Ky.) Medical College, 1876; consulting physician, St. Joseph's Hospital; died, September 8, from heart disease, aged 70.

George F. Clark, Saginaw, Mich.; University of Michigan, Homeopathic Medical School, Ann Arbor, 1893; health officer of Saginaw; died suddenly, August 16, aged 53.

Warner E. Brown, Fort Worth, Texas; Washington University Medical School, St. Louis, 1869; died, August 6, from cerebral hemorrhage, aged 74.

Cipriano Hermandez Leon ✠ Tucson, Ariz.; National School of Medicine, Mexico, 1896; died, September 13, from heart disease, aged 50.

Ernest Hubert Vincent, Dallas, Texas; M.D., B.S., University of London (Eng.), 1888; died, September 5, from chronic nephritis, aged 54.

Margaret E. Holland, Houston, Texas; Northwestern University Woman's Medical School, Chicago, 1873; died, September 1, aged 73.

A. L. DeSouchet, Chicago; Chicago Homeopathic Medical College, 1886; died, September 21, in Los Angeles, from diabetes, aged 59.

Nathan M. Hancock ✠ Cane Valley, Ky.; Medical Department University of Louisville, 1893; died, September 13, aged 65.

Joseph E. Sterrett, Los Angeles; Chicago Medical College (Northwestern University), 1869; died in September, aged 79.

William J. H. Booher, Oxford, N. C.; Leonard Medical School, Raleigh, 1908; died, August 24, aged 40.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

MORE MISBRANDED NOSTRUMS

Abstracts of Recent Notices of Judgment Issued by the Bureau of Chemistry of the United States Department of Agriculture

Joyner's Gui-A-Col Compound.—A quantity of this article, shipped in January, 1921, by the Williams-Ellis Drug Co., Norfolk, Va., was declared misbranded. The Bureau of Chemistry reported that analysis showed the article to consist essentially of guiacol, an iodid, sugar, alcohol, and water. The stuff which was "Guaranteed by the Gui-A-Col Medicine Co., Inc.," was falsely and fraudulent labeled as a remedy for consumption, whooping cough, sore throat and "All Affections of the Throat, Chest and Lungs." In April, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9269; issued Aug. 19, 1921.*]

Egyptian Regulator Tea.—The Kells Co., Newburgh, N. Y., shipped a quantity of this preparation in April and May, 1920, from New York to Nebraska. The federal chemists reported that analysis showed that Egyptian Regulator Tea consisted

EGYPTIAN TEA
CURES
CONSTIPATION
Dyspepsia,
Biliousness,
Rheumatism,
Nervous Debility,
Liver Complaints,
Sick Headache, &c.
NEW YORK CITY.
Egyptian Regulator Tea
HAS NO EQUAL as a quick and pleasant cure for
Constipation, Biliousness, Dyspepsia, Sick Headache, and all Disorders of the Stomach.
Its daily use will Purify the Blood, Remove all Blotches from the Face, and Restore the Complexion. Ladies will find this a valuable remedy for all Female Complaints. As a Liver and Kidney cure it has no equal. Specially adapted for children and delicate women and those who cannot take pills, as it is agreeable and pleasant to take.
Egyptian Regulator Tea is made from the original and only genuine recipe obtained in Cairo by the late Prof. Hutt of Paris, and is sold on its merits only. All other advertised remedies of this class are imitations of the original. The ingredients—32 in number—will be given to any reputable physician on application.

essentially of senna, coriander, dog grass, ginger, taraxacum (dandelion), sambucus (elder flower), licorice and cinnamon. The trade package bore such claims as the following:

"A Speedy and Positive Relief for Dyspepsia, Liver Complaint, Sick Headache, Nervousness.."

"Nature's own gift to dyspeptic, debilitated men, to Wornout, Nervous women, to Mothers of Peevish and Sickly Children, to girls just budding into womanhood, to sufferers from defective nutrition and blood diseases, to corpulent people whether male or female, old or young."

"Ladies will find this a valuable remedy for all female complaints, also for liver and kidney trouble."

Because of these false and fraudulent claims the product was declared misbranded and in March, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9235; issued Aug. 12, 1921.*]

Nervosex Tablets.—In August, 1920, the United Laboratories Co., St. Louis, Mo., shipped a quantity of "Nervosex Tablets" which were misbranded. The federal chemists reported that analysis showed the tablets to consist essentially of strychnin, phosphates, and iron, zinc, and calcium salts. The preparation was falsely and fraudulently labeled "a compound of nerve and muscle stimulants for low vitality, lack of energy, sexual weakness." In March, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9246. issued Aug. 12, 1921.*]

Castalian Natural Mineral Water.—J. P. Forbes & Co., Chicago, Ill., and Santa Cruz, Cal., shipped in September, 1920, over ten dozen bottles of Castalian Natural Mineral Water which the federal authorities declared misbranded.

This water was recommended for rheumatism, Bright's disease, dyspepsia, diphtheria, hay fever, diarrhea, leucorrhea, granulated eyelids, sea sickness, sunburn, goiter, locomotor ataxia, asthma and pimples, and many other conditions. The claims were declared false and fraudulent; moreover, the quantity of the contents was not declared on the outside of the package. In March, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9244; issued Aug. 12, 1921.*]

Man's Capsules.—In April, 1920, the Man's Capsule Co., Washington, D. C., shipped a quantity of this product in interstate commerce. The Bureau of Chemistry reported that analysis of a sample of the article showed that the contents of the capsules consisted essentially of powdered cubebs and copaiba. Some of the claims made on the trade package for this preparation were:

"Man's Capsules. A prompt and reliable remedy for Gonorrhea and Gleet . . .;"

"For All Inflammations Of The Urinary Organs, Kidneys, Bladder, Etc.;"

The claims were declared false and fraudulent and in December, 1920, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9211, issued Aug. 12, 1921.*]

Correspondence

CANINE PARAPLEGIA

To the Editor:—During the years 1905-1909 at the U. S. Quarantine Station, Blackbeard Island, Ga., a disease known locally by the name of staggers was observed among a pack of hunting hounds. The name described accurately the early symptoms of the disease.

In the early stages the dog had a very characteristic gait; the hind quarters owing to weakness of the muscles, were very unsteady, causing lurching from side to side, with stumbling in the hind feet. The weakness steadily increased until finally the dog was unable to stand up, but dragged himself about by the forequarters, with total loss of power in the hind quarters, which dragged along the ground. No incontinence of urine or feces was observed.

On examining dogs thus affected it was found that the inner surfaces of the ears, especially those portions free from hair, were covered by masses of wood ticks so firmly attached that artery forceps were required to remove them, and in doing this some of the epithelium was detached also, where the mouth parts of the ticks were attached.

Dogs heavily infected with ticks developed paralysis quickly. The severity and rapidity of onset of the paralysis was closely associated with the numbers of ticks adherent to the ears in each case. Solitary ticks attached to dogs, although gorged with blood, caused no demonstrable symptoms of paralysis. When no other means than the removal of the ticks was employed, the paralysis rapidly disappeared, the dogs regained their former health, and they were able to hunt as well as ever.

Cattle roaming the woods throughout the year were singularly free from ticks, only an occasional solitary gorged tick being found. None of the cattle developed paralysis during the five years during which they were observed. Wild deer and wild ducks were free from ticks. The wild deer apparently would have the same opportunity to pick up ticks in the woods as the dogs. Some raccoons which were captured were free from ticks.

Human beings were rarely attacked by ticks; when they were, a solitary tick could be found in each case. On human beings a favorite point of attack was between the shoulder blades where the tick was difficult to reach, and an annoying itching sensation was experienced, accompanied later by pain and inflammation. On removal of the tick, the symptoms rapidly disappeared.

M. K. Gwyn, M.D., Baltimore.
Surgeon, U. S. Public Health Service.

[Comment.—In this connection, compare article on "Paralysis in Children Due to the Bite of Wood-Ticks," by Dr. P. D. McCornack, The Journal, July 23, 1921, p. 260.—Ed.]

THE PREVENTION OF TYPHUS FEVER IN HOSPITAL PERSONNEL

To the Editor:—I will attempt to describe the system we adopted at Milina, Dalmatia, where I was associated with Dr. C. C. Yount of the American Red Cross, in clearing up the epidemic at Cattaro Bay. If a person in the hospital contracts the disease, it shows that there is a break somewhere in the disinfection or, more properly speaking, in the delousing. No person working in a properly regulated typhus hospital should become infected, unless through his own carelessness. In the field, where physicians and nurses are required to come in close contact with infected cases, it is important that they be provided with a combination undersuit of closely woven white cotton. This garment should be made of the ordinary sheeting, which is so closely woven that the louse cannot crawl through the meshes. It must be smooth, white material, and made up so as to leave no rough edges at the seams, that is, the seams must be turned down and resewed so as to make the edges smooth and leave no hiding place for the louse. The pattern should be a one-piece suit, to include stockings, long sleeves and a high collar. The sleeves can be fastened tightly about the wrists. This garment should be worn under or just over the underclothing. An outer garment similar to a surgeon's gown must be worn over all the other clothing. Rubber boots or high laced boots must be worn to prevent the louse from crawling up from the floor.

We have never insisted on the wearing of rubber gloves, as they are very bad for the skin if worn continuously, are clumsy if of the heavy loose type, and are easily torn if made of thin material. I know of only one authentic case in which an infection was produced by a bite on the hand alone.

Woolens should be avoided, as the louse clings to such garments. Cotton and silk are best. I myself prefer to wear a trench-coat as an outer garment. The material is of such texture that the louse cannot cling to it and is easily shaken off.

At the completion of the day's work the outer garment should be taken off, shaken and hung up where it will not come in contact with other articles of clothing. A bath should be taken every night, and all the clothing, including the protective suit, should be changed. To finish the bath, the body should be sponged with a soapy water made of germicidal soap which should not be washed off. I have been using this soap ever since I began to work in typhus areas; and as I have caught several lice on my body and have never been bitten by one, I am convinced that the louse will not bite the skin recently washed with such a soap.

One thing that must be remembered is that typhus is not as frequently conveyed by the bite of the louse as it is from the crushing of the louse and smearing the body contents over the abrased skin. The natural instinct when one feels a bite is to scratch or rub the area through the clothes. This is just what must not be done, because this crushes the louse and smears its body contents. In Milina we carried a bottle of chloroform; and when we suspected the presence of a louse on the body or when we felt a nibble, we simply covered the spot with the open mouth of the bottle and inverted it so as to saturate the clothes over the area with chloroform.

In this way the louse, if present, was killed and we avoided the danger involved in crushing by scratching or rubbing. Not only does the chloroform kill the louse, but it neutralizes the virus in the bite.

Protection of the personnel in the hospital lies mainly in the efficiency of the delousing and disinfecting squad. As is commonly known, typhus is not directly infectious; therefore, if the patients are properly disinfected there is absolutely no danger to the hospital personnel. In this respect typhus is similar to malaria. There is no danger from a patient with malaria, nor is there any danger from a patient with typhus.

At Milina all cases coming from the hospital were put through a delouser. All the hair was clipped from the body, head, armpits and pubis, and the patient was scrubbed thoroughly with soap and hot running water. Then the hairy areas of the body were anointed with kerosene (coal-oil). Clean pajamas were placed on the patient, and he was wrapped in a clean blanket and transferred to his bed in the hospital. The clothes were at the same time put through a pressure steam sterilizer, and furs were put through a sulphur bath. In this way only louse free patients arrived at the hospital.

Any person finding a louse on a patient or on the clothing of the personnel was required to report this immediately to the physician in charge of the hospital or to the chief nurse, at which time special steps were taken to discover from what source the louse came and to delouse the patient or person suspected.

It is seldom necessary for physicians or nurses to expose themselves by handling louse infected patients and articles of clothing, as there are always present persons who have had typhus, who can handle typhus patients and their clothing. The work of the physician and the nurse should be directing and not the handling of the patients and articles of clothing. Too many overenthusiastic persons think they must demonstrate the fact that they are not afraid of typhus or of work. These people are "penny wise and pound foolish." They are sure to become infected sooner or later, and then their work must be done by some one else.

J. R. RANSON, M.D., Saloniki, Greece.
American Red Cross Sanitary Inspector.

"EXPERIMENTAL STUDIES ON TRACHOMA"

To the Editor:—If you look in the 1920 Transactions of the American Academy of Ophthalmology and Otolaryngology, page 196, you will find my contribution to the rôle of the fly in the dissemination of trachoma; and the facts therein related may be of interest in the light of Nicolle and Guénod's research which you have just given editorial notice (THE JOURNAL, September 17, p. 943).

H. B. YOUNG, M.D., Burlington, Iowa.

[COMMENT.—In his paper Dr. Young made the suggestion that the fly may convey trachoma, and supports his contention with the statement that where trachoma abounds, flies also abound and that he has observed a diminution of the number of cases as screening and other sanitary measures were introduced.—ED.]

DANGER IN SIMILARITY OF ETHER AND CHLOROFORM CONTAINERS

To the Editor:—A large manufacturer of anesthetic supplies is now dispensing chloroform in tin cans which closely resemble those containing ether. The very great and real danger of confusing these two containers, as well as the possibility of the operating-room personnel pouring the contents of one half can into another half can is sufficiently obvious to cause the prompt and complete exclusion of such containers from the operating-room.

P. J. FLAGG, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

WILDBOLZ AUTO-URINE TEST FOR TUBERCULOSIS

To the Editor:—Please publish the technic of the method used by Lanz in the auto-urine test for tuberculosis. Kindly omit my name.

M. A. P., Pennsylvania.

ANSWER.—The reaction referred to was first described by Wildbolz (*Cor.-Bl. f. Schweiz. Aerzte* **49**:793 [May 31] 1919) as a means of differentiating between active and inactive tuberculosis. The article was abstracted in THE JOURNAL, Aug. 9, 1919, p. 456. Lanz merely reported his observations on the use of the method (*Schweiz. med. Wchnschr.* **50**:321 [April 22] 1920). Wildbolz demonstrated that when there is an active process of tuberculosis the urine contains an antigen which, injected by the Mantoux intradermal technic, induces infiltration and redness. This does not occur with urine from healthy persons or in urine from persons with healed tuberculous processes. It never occurs unless the person gives a positive response to injection of 1:10,000 tuberculin, but it seems to occur whether the urine is from the person being tested or not, so long as he has an active tuberculous process anywhere in the body, in glands, peritoneum, lung, bones or elsewhere. Wildbolz evaporates morning urine to 1:10, passes it once or twice through a paper filter impregnated with 2 per cent. phenol, and then makes three sets of two injections on the arm, the two upper with 1:1,000 tuberculin; 3 or 4 cm. below this, two with 1:10,000 tuberculin, and the same distance below, two with a minute amount of the 1:10 evaporated urine. The response with an active, tuberculous process is the same with the urine as with the diluted tuberculin, but the tuberculin response persists unmodified after the process has healed, while the urine response fades out completely. A similar response was never obtained in the nontuberculous, not even in syphilis, influenza, etc., with the single exception that urine containing large amounts of staphylococci induced a reaction, so that the findings are not pathognomonic in certain cases of nephritis. With this exception, it is said that this biologic reaction may be depended on to reveal the tuberculous or nontuberculous nature of lesions, and it will also disclose when they are healed. If the urine reaction persists after the clinical healing of the known process, there is some other active process elsewhere. The specific nature of the urine reaction is demonstrated still more conclusively by the fact that, after subsidence of the urine reaction, if an injection of 1:1,000 tuberculin is made nearby, the apparently extinct urine reaction flares up anew, the infiltration and redness becoming distinct again.

OWNERSHIP OF ROENTGEN-RAY PLATES

To the Editor:—Will you kindly forward me court rulings concerning ownership of roentgen-ray plates, i. e., do the negatives belong to the patient or to the roentgen-ray operator? As rulings may be different in different states, I am particularly interested in the state of Colorado, and will be pleased to have court decisions.

J. J. MAHONEY, M.D., Colorado Springs.

To the Editor:—Can you enlighten me as to the just ownership of roengen-ray films; whether or not they remain the property of the laboratory that takes the picture, or whether the patient is the owner? We have a case in which a patient submitted himself to a physician here for physical examination and a diagnosis of an ailment. The physician referred him to the roentgen-ray department for roentgenograms of his chest, and we found, on examination, a cardiospasm present. The patient was given a written diagnosis and the copy of the roentgen-ray findings was sent to the physician and a print was also made from the negative and given to the patient. He now claims that the films belong to him and has instigated legal proceedings to recover them. We have maintained that these films are the property of the roentgen-ray department and part of our records, and we have therefore refused to give him these negatives on the ground of having set this rule that no films are to leave the department, but that prints will be made and given to the patient.

I will be obliged if you can refer some of the past actions and your rules on this technicality. There are no statutes in our state dealing with this form of action.

H. H. PRATT, M.D., Colorado Springs.

ANSWER.—This question has never been passed on by a court of last resort, but it may be answered by analogy. The

patient goes to the physician, primarily, for a diagnosis of his condition, and for such treatment as may be indicated. The physician makes an examination, of which the taking of the roentgenograms is a part. If the photographs are taken by the physician himself, then the plates are a part of his record of the case. If they are taken by a roentgenologist, then the report to the physician, perhaps accompanied by prints of the negatives, is a part of the clinical record. The diagnosis is based on the examination and the clinical record. The patient pays for the opinion and the treatment, not for the means by which they were determined. He does not pay for the plates any more than he does for the apparatus. In the absence of any special agreement, the plates belong to the person who made them. This conclusion is borne out by analogy. The courts have consistently held that a prescription does not belong to the patient. He does not pay for it, but for an opinion as to his disorder and for treatment. The prescription is an order on the druggist to supply the patient with certain drugs. The patient delivers this order to the druggist and receives his medicine. The druggist holds the order as his voucher or authority for supplying the drugs. The situation is similar to that of a depositor writing a check on a bank. The check is not money. It is simply an order on the bank, as custodian of the depositor's money, to pay a certain amount to the holder of the check. Unless some specific agreement to the contrary is made, photographic plates belong to the person who makes them. An additional analogy is found in the question of the ownership of ordinary photographic plates. A person goes to a studio for photographs. The negative is a part of the apparatus by which photographs are produced. The patron does not pay for the plates any more than he does for the camera. The courts have repeatedly decided that the plates belong to the photographer, who is, however, required to restrict their use to proper purposes. The following references are to previous discussions of this question and to court decisions bearing on it:

American Mutoscope Biograph Company, v. *Edison Manufacturing Company*, 137 F 262.
Itzrovitch v. *Whitaker*, 39 So. 499; 115 La. 479; 1 L. R. A. 1147.
Schulman v. *Idem*, 39 So. 707; 115 La. 628.
In re Whitaker, idem.
Burrow-Giles Lithograph Company v. *Sarony*, 111 U. S. 53.
Thornton v. Schreiber, 124 U. S. 612.
Nottager v. *Jackson*, 11 Q. B. Div. 627.
The Property in a Prescription, THE JOURNAL, Nov. 25, 1916, p. 1612.
Ownership of Roentgenograms, THE JOURNAL, May 20, 1916, p. 1650.
Medical Ethics in Relation to Roentgenology, THE JOURNAL, Oct. 18, 1913, p. 1485.
Ownership of Prescription, THE JOURNAL, Dec. 7, 1907, p. 1936.

"VETERINARY CHIROPRACTIC"

To the Editor:—The comment on "Veterinary Chiropractic" (THE JOURNAL, September 17, p. 944) reminds me of an incident of two or three years ago. A chilropractor was making regular calls at the home of a prospercus farmer to "adjust" the farmer's wife. The farmer had a full blood Holstein heifer fresh for the first time and unfortunately the heifer gave milk from but two teats. To attend the heifer the farmer called a graduate veterinary surgeon, who had made two or three trips to the farm but who had not succeeded in obtaining milk from the other two teats. The heifer was mentioned in presence of the chiropractor, who said, "Let me see the heifer, I can fix her for you." So after adjusting the farmer's wife the chiropractor went to the barn, ran his fingers along the heifer's spine, and said "Here is the trouble, right here." He secured a croquet ball and mallet, returned to the barn, placed the ball on the heifer's back and hit it with the mallet, assuring the farmer that the heifer would be all right now. The heifer never gave milk from the other two teats. The farmer tells the story and thinks it a great joke that the chiropractor should attempt to adjust the heifer, but it has not yet dawned on the farmer that there is any joke in the chiropractor adjusting his wife.

ROLLA CAIRNS, M.D., River Falls, Wis.

GRAM STAIN MADE WITH FORMALDEHYD SOLUTION

To the Editor:—Kindly publish the formula for a modified Gram stain made with formaldehyd solution which appeared in THE JOURNAL several years ago and had the advantage that it was permanent. Please omit my name. "FRESNO."

ANSWER.—The formula for this stain was published in THE JOURNAL, Oct. 9, 1920, p. 1017. It is as follows: gentian violet, 4.8; alcohol, 100; formaldehyd solution, 15; water to 400. The iodin solution used with this stain is the usual 1, 2 and 300 combination of iodin, potassium iodid and water.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARIZONA: Phoenix, Oct. 4-5. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.
ARKANSAS: Little Rock, Nov. 8-9. Sec., Reg. Bd., Dr. J. W. Walker, Fayetteville; Sec., Homeo. Bd., Dr. Geo. M. Love, Rogers; Sec., Eclectic Bd., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith.
CALIFORNIA: Sacramento, Oct. 17-20. Sec., Dr. Charles B. Pinkham, 135 Stockton St., San Francisco.
COLORADO: Denver, Oct. 4. Sec. Dr. David A. Strickler, 612 Empire Bldg., Denver.
CONNECTICUT: Hartford, Nov. 8-9. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford.
CONNECTICUT: New Haven, Nov. 8. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.
DISTRICT OF COLUMBIA: Washington, Oct. 11. Sec., Dr. Edgar P. Copeland, 1315 Rhode Island Ave., Washington.
FLORIDA: Tallahassee, Oct. 11. Sec., Dr. William M. Rowlett, Citizens Bank Bldg., Tampa.
GEORGIA: Atlanta, Oct. 11-13. Sec., Dr. C. T. Nolan, Marietta.
HAWAII: Honolulu, Oct. 11. Sec., Dr. G. C. Milnor, 401 S. Beretania St., Honolulu.
IDAHO: Boise, Oct. 4. Director, Mr. Paul Davis, Boise.
ILLINOIS: Chicago, Oct. 19-22. Director, Mr. W. H. H. Miller, Springfield.
IOWA: Des Moines, Nov. 1-3. Sec., Dr. Guilford H. Sumner, Capitol Bldg., Des Moines.
KANSAS: Topeka, Oct. 11. Sec., Dr. Albert S. Ross, Sabetha.
MAINE: Portland, Nov. 8-9. Sec., Dr. Frank W. Searle, 775 Congress St., Portland.
MICHIGAN: Lansing, Oct. 11. Sec., Dr. Beverly D. Harison, 504 Washington Arcade, Detroit.
MINNESOTA: Minneapolis, Oct. 4-6. Sec., Dr. Thomas McDavitt, 539 Lowry Bldg., St. Paul.
MISSOURI: Kansas City, Oct. 10-12. Sec., Dr. Cortez F. Enloe, State House, Jefferson City.
MONTANA: Helena, Oct. 4. Sec., Dr. S. A. Cooney, Power Bldg., Helena.
NEVADA: Carson City, Nov. 7. Sec., Dr. Simeon L. Lee, Carson City.
NEW JERSEY: Trenton, Oct. 18-19. Sec., Dr. Alexander MacAlister, State House, Trenton.
NEW MEXICO: Santa Fe, Oct. 10-11. Sec., Dr. R. E. McBride, Las Cruces.
OKLAHOMA: Oklahoma City, Oct. 11-12. Sec., Dr. J. M. Byrum, Shawnee.
PHILIPPINE ISLANDS: Manila, Oct. 11. Sec., Dr. Fortunato Pineda, 612 Rizal Ave., Manila.
PORTO RICO: San Juan, Oct. 4. Sec., Dr. M. Quevedo Baez, Box 804, San Juan.
RHODE ISLAND: Providence, Oct. 6-7. Sec., Dr. B. U. Richards, State House, Providence.
SOUTH CAROLINA: Columbia, Nov. 8. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.
TEXAS: Dallas, Nov. 15-17. Sec., Dr. T. J. Crowe, 918-19 Dallas County Bank Bldg., Dallas.
UTAH: Salt Lake City, Oct. 4. Sec., Dr. J. T. Hammond, Capitol Bldg., Salt Lake City.
WEST VIRGINIA: Clarksburg, Oct. 11. Sec., Dr. W. T. Henshaw, Charleston.
WYOMING: Cheyenne, Oct. 3-5. Sec., Dr. J. D. Shingle, Cheyenne.

ADDITIONAL HOSPITALS APPROVED FOR INTERN TRAINING

A completely revised list of hospitals approved for internships was published in the 1921 edition of the American Medical Directory. In the list published in the Hospital Number of THE JOURNAL (April 16, 1921) general hospitals approved for intern training are indicated by an asterisk (*). The following hospitals have been approved since March 15, 1921:

SECTION I: General Hospitals.
St. Mary's Hospital, San Francisco.
SECTION II: Special hospitals (neuropsychiatric), approved only for affiliated internships and graduate medical teaching.
Livermore Sanitarium, Livermore, Calif.
Manhattan State Hospital, Ward's Island, New York City.
SECTION III: Special hospitals, approved only for affiliated internships and graduate medical teaching.
North Chicago Hospital, 2551 North Clark Street, Chicago. (Eye, ear, nose and throat hospital.)

District of Columbia July Examination

Dr. Edgar P. Copeland, secretary, Board of Medical Supervisors of the District of Columbia, reports the oral and written examination held at Washington, July 12-14, 1921. The examination covered 16 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 28 candidates examined, 25 passed and 3 failed. Five candi-

dates were licensed by reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Georgetown University (1914) 85.1, (1921) 83.5, 84.1, 84.3, 87, 87, 87.6, 92.8		77.5,
George Washington University (1920) 86.7, (1921) 79.2, 80.1, 81.3, 82.5, 82.5, 83.5, 84.2, 86, 88.5, 88.8, 90.1		76.7,
Howard University (1921)		86.8
Tulane University (1921)		82.6
Jefferson Medical College (1918)		84.1
FAILED		
Howard University (1920) 68.1, 73.8, (1921)		73.6

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
Georgetown University (1918)		Louisiana
Rush Medical College (1911)		Arkansas
Johns Hopkins University (1917)		Maryland
Maryland Medical College (1912)		Maryland
University of Michigan Homeopathic Med. School (1880)		Iowa

Miscellany

REGULATION OF MIDWIFERY IN MASSACHUSETTS

Maternal mortality has increased in Massachusetts from 42 per 10,000 live births in 1900 to 60 in 1919. Vital statistics reports for 1918 show that of 2,944 babies who died less than one week after birth, 9 per cent., or 2,656, died as a result of prematurity, congenital debility or malformations received at birth. In the same year, 27.2 per cent. of the total number of infant deaths occurred in the first week of life and 39.7 per cent. during the first month. This situation led the Massachusetts Department of Public Health to make an investigation of the conditions surrounding maternity throughout the state. This study was started in the fall of 1919 by the division of hygiene, and a report of the investigation appears in the *Bulletin* of the State Department of Health for April, 1921.

Representative sections were selected and carefully studied, the investigation being limited to births occurring in the last six months of 1918. The midwife situation in Massachusetts is unusual. The supreme court held, in the case of *Commonwealth* v. *Russo*, that midwifery is a department of medicine and that the practice of midwifery comes under the state medical practice act. This means that in Massachusetts no one can legally qualify as a midwife unless she can also qualify as a physician and surgeon. At the same time, the vital statistic law specifically requires midwives to report births and stillbirths. The result of this legislation has not been to prevent midwives from practicing but, on the contrary, to drive them to practice secretly; and, in order that they may not be detected in any violation of the medical practice act, they refrain from reporting births. Midwives continue to practice especially among foreign born women, but they are afraid to report the births which they attend. Births attended by midwives are either reported by the parents or by a physician, who reports them over his own signature as a matter of accommodation to the midwives.

Out of 17,499 births, 90.5 per cent. were reported by physicians, 6 per cent. by midwives, and 3.5 per cent. by others. One hundred and seventeen midwives were found living in the districts studied, together with seventeen "neighbors" who reported that they had attended one or more births, and seven midwives living outside the districts but practicing in them, making a total of 138 women who had attended women in childbirth in the districts studied. Of this number, eighty were visited in their homes. Thirty were found to be personally clean and living in clean surroundings; twenty-nine were graded "fair" and twenty-one as "dirty." Twenty-five were selected for more detailed study. Of these, two were between 20 and 30 years of age, eight between 30 and 40, nine between 40 and 50, and six were over 50. Two were born in the United States; one each in Austria, England and Syria; two in Portugal; three in Finland; six in Poland, and nine in Italy. Twenty-three were married and two were widows. Eighteen could read and write English. Twenty could read and write their own language. Fifteen could read and write both languages. Regarding cleanliness, fifteen were graded "excellent"; five, "fair," and five "dirty." Three had received training in the United States, ten in foreign countries, and ten had had no training at all. Regarding length of time of practice, two had practiced from one to five years, two from five to ten years, seven from ten to twenty years, six from twenty to thirty years, one from thirty to forty years; and in seven cases the length of time of practice was unknown. Twelve claimed to use prophylaxis for eyes in all of their cases; six did not. In seven cases it was not determined. Regarding the number of confinements attended, twenty-five midwives had reported 370 live births in six months and two stillbirths.

Inquiries among clergymen, physicians and others as to midwifery elicited opinions from foreign born clergymen working among their own people which were unanimously in favor of midwifery, the reasons being given that such services were economical and customary. Letters were sent to 292 physicians practicing in the districts studied asking their views regarding midwives. Only thirty replied. Personal calls on the physicians increased the number of opinions to forty-two. Fourteen physicians were in favor of training, licensing and supervising midwives; three were opposed to such action, and ten had no suggestions to make. An analysis of 850 births in one city shows that 33 per cent. were attended by midwives and were reported, and that less than two thirds were attended by physicians, the difference being births where there was no one in attendance. It was also found that attendance by a midwife was not a financial question but a racial custom, and that it persisted in spite of financial conditions, free clinics, etc. The report also contains an interesting summary of the regulation of midwifery in the United States.

LUDENDORFF RECEIVES HONORARY MEDICAL DEGREE

The *Münchener medizinische Wochenschrift*, Aug. 26, 1921, contains the following item:

LET US HANG OUR HEADS

The *Darmstädter Zeitung*, the official organ of the government of Hesse, contains in No. 193 the following article:

DOCTOR LUDENDORFF!

The medical faculty of the University of Königsberg in East Prussia, the well known stronghold of the German nationalist party, on the occasion of the Tannenberg celebration, bestowed the title of doctor *honoris causa* on the former field-marshal general Ludendorff. In the document pertaining thereto, it is stated that the title is conferred upon "the hero who with the sharp blows of his unconquered sword protected the German people from the crowd of booty-hungry enemies, until the people, trusting in false statements, abandoned its unbroken defense and its strong leaders."

The medical faculty of the university would seem to have been living on the moon during the last seven years. The gentlemen, who, while acting as army surgeons, during the war, prescribed untold quantities of acetylsalicylic acid to wounded soldiers with heart, lung, gastric and intestinal diseases, as if it were a panacea and the only remedy known to medical science, now seem to have their brains entirely befuddled. It is certain that the German people trusted to false statements; that is true—unfortunately—namely, to the words of Ludendorff, Tirpitz and his consorts, who imposed on the people their nonsense about "the annihilated reserves of Foch," the "great success of the submarine war," and the "entire impossibility of America throwing troops on to the continent," in spite of the fact that any person who was half awake knew that, after America entered the war, our cause was absolutely lost.

Ludendorff and his associates, by their senseless sacrifice of the German reserves and by their pernicious maneuvers, broke their own defense, and Hindenburg, together with Ludendorff, were the very ones who whiningly twice implored Prince Max to take steps that would lead to the immediate negotiation of a truce, as they otherwise "could not answer for the consequences."

After the receipt of these telegrams it became clear to the German people that Hindenburg and Ludendorff had announced their complete bankruptcy; that the Siegfried line had been abandoned, and that the army of the crown prince had begun a wild retreat, and *then*—not even then did the German people depose its leaders, as the all wise medical faculty of the University of Königsberg asserts, and as the leaders would have richly deserved; the latter, however, gave evidence of their heroism by quickly disappearing over the borders. *They* withdrew before the people could inquire into their accountability; *they* abandoned the German *people*—not the reverse.

We congratulate Mr. Ludendorff on his new title. Murder of the masses and doctor of medicine—they go well together.

This utterance of the official organ of the government of a German state deserves to be known to wider circles. Comment is superfluous.

In accordance with the suggestion of the *Münchener medizinische Wochenschrift*, the "utterance of the official organ" is here made "known to wider circles."

Book Notices

TICE'S PRACTICE OF MEDICINE. In ten volumes; Volume 8. Editor-in-Chief, Frederick Tice; Advisory Editor in Medicine, Luther F. Warren; Advisory Editor in Neurology, Julius Grinker. Price, $115 per set. Hagerstown, Md.: W. F. Prior Company, Inc., 1921.

The most satisfactory article in this volume is that on diseases of the pituitary gland by Engelbach and Tierney. It has been carefully written. There is evidence of familiarity with the literature. Matters are presented in a clear and orderly manner, and the article is one that a reader may well consult for an up-to-date presentation of the subject. Numerous clinical cases are cited with minute details, one might almost say with superfluous details, though where knowledge concerning the manifestations of a disease is so rudimentary as is our knowledge concerning the pituitary gland, details must be full, as otherwise there may be omitted features that in future will be shown to possess significance. Other contributions are on alcoholism and drug addiction, by Jewett; lead poisoning, mercury poisoning and arsenic poisoning, by Tasker Howard; food poisoning, by Seale Harris; milk sickness, by Arthur Clay; diseases of the suprarenals, thymus, pineal, ovaries and testicles by the younger Sajous, and of the thyroid and parathyroid glands by the senior Sajous; diseases of the spleen, by Bunting, and Gaucher's disease, by Brill and Mandelbaum. All of the authors who write on the endocrine glands might read with profit the recent article by Dr. Harvey Cushing and the recent editorials in THE JOURNAL calling attention to the danger of failing to discriminate between fact and theory. In these writings it is often hard for the reader to decide what he may regard as established fact and what as some theory still on trial or merely under discussion. We feel, also, that some editorial readjustments might properly have been made. The article by Engelbach and Tierney occupies more than half of the 698 pages of text. Surely this is an unjust proportion. The thyroid has only one fifth as much space. To have some articles brief and sketchy and others full justifies criticism on the basis of lack of uniformity. From what we have so far seen of this System it is not, as a whole, in any sense a monumental work, comparable, for example, to Nothnagel's System of twenty years ago or to Ziemssen's of earlier date. There are too many short articles, brief epitomes, and too few carefully written, comprehensive monographs. This criticism, we may add, will apply also to other systems of medicine that are now being published in this country.

DIE INNERE SEKRETION. Eine Einführung für Studierende und Aerzte. Von Dr. Arthur Weil, Privatdozent der Physiologie an der Universität Halle. Paper. Price, 28 marks. Pp. 140, with 35 illustrations. Berlin: Julius Springer, 1921.

Instead of discussing each so-called gland of internal secretion separately after noting the effects of extirpation, hyposecretion, hypersecretion or dysfunction of the gland on the various body processes, the author, after a short introduction on the historical aspects of the subject and histogenesis of the various glands, takes up the various physiologic processes of the body and discusses them from the point of view of any influence which the various glands of internal secretion may or do have on them. The titles of the various chapters indicate his subdivisions of the physiologic functions which are taken up from this point of view: the physiology of the blood, circulation of the blood, respiration and speech, metabolism, growth and body form, reproduction, sexual urge, and the mind. The presentation of the subject from this point of view involves a discussion in every chapter of the interdependence of the various glands and the vicarious activity of one gland during hypo-activity of another. This novel method of presentation of the subject for physicians and medical students has much to commend it. In view of the size of the volume, the author has done remarkably well. Unfortunately, he diagrams an interrelationship of organs which might readily influence the reader to assume a beautiful finality on a subject in which more facts are necessary both from the clinic and from the laboratory. Some old and unreliable work is incorporated in the volume. The illustrations are well chosen. The book contains no bibliographical references.

THE BASIS OF PSYCHIATRY (PSYCHOLOGICAL MEDICINE). A Guide to the Study of Mental Disorders for Students and Practitioners. By Albert C. Buckley, M.D., Associate Professor of Psychiatry, Graduate School of Medicine, University of Pennsylvania. Cloth. Price, $7. Pp. 447, with 79 illustrations. Philadelphia: J. B. Lippincott Company, 1920.

The close relationship between the subjects of biology and psychology is responsible for the change in the approach to problems of psychiatry—on lines of experimental biology. Beginning with the simplest protoplasmic activities of metabolism, growth, reproduction, irritability and conductivity, the reader is led to the understanding and differentiation of "reaction types" in man. The inherited attribute to meet changing conditions of environment demands ability to make suitable adjustments. It is a maladjustment which manifests itself as a psychosis or neurosis with or without gross physical changes. The problems of psychiatry can best be approached from a biologic point of view if we look on the nervous system as the organ of adjustment, not only of single organs and systems, but also of the organism as a whole. The chapters on biologic phenomena, cerebral development, receptive apparatus, mental development and psychologic processes are very complete. The chapter on methods of examinations, including laboratory diagnostic methods, is good. The classification of mental disorders accepted by the author is the one proposed by the committee appointed by the American Medico-Psychological Association. The description of the schizophrenic and cyclothymic psychosis—biogenetic psychosis—is very detailed. Attention is called to the tendency in recent years to shift patients from one of these groups to the other according to whether it is considered warranted by the clinical picture presented. The dementia praecox patients have been falling in number, and the manic-depressive increasing. The defective groups, such as idiocy and imbecility, have been purposely omitted. A glossary of biologic, psychologic and psychiatric terms is given as an appendix. The work of Dr. Buckley is a concise expression of modern thought in psychiatry, and presents a good guide to the study of mental disorders.

DISEASES OF THE EAR. By Philip D. Kerrison, M.D., Aural Surgeon to the Willard Parker Hospital for Infectious Diseases. Second edition. Cloth. Price, $6.50. Pp. 596, with 333 illustrations. Philadelphia: J. B. Lippincott Company, 1921.

This is a comprehensive, well-written presentation of the present status of our knowledge of diseases of the ear. The book easily takes a foremost place among textbooks on otology from this country, as well as those which have been published abroad. One notes a few minor errors. For example, on page 72 the author refers to the fork vibrating 128 double vibrations per second as the "C" fork, whereas it should be designated the small "c" fork, and on the same page the fork vibrating 64 double vibrations is designated as the "C^{-1}," whereas it should be written "C." Another such error is noted on pages 266 and 267, where he confuses the aqueductus vestibuli with the ductus endolymphaticus. He perpetuates an error common to most textbooks when on pages 126 and 145 he insists that nasal obstructions including those resulting from anatomic variations, such as irregularity of the nasal septum, play an important part in the etiology of diseases of the eustachian tube. His statement on page 355 that disturbances of equilibrium and vertigo following the sudden destruction of one labyrinth is caused by a hyperactivity of the sound labyrinth cannot be accepted, as there are no grounds for assuming that the activity of one labyrinth is in any way disturbed by injury to the opposite ear. He refers repeatedly to "irritation" of the labyrinth as a cause for disturbances of equilibrium and vertigo (pp. 528 and 531). As a matter of fact, the disturbances which arise from injury to the labyrinth are not caused by irritation but are due to suppression of function. This suppression, confined to one side or involving one side more than the other, gives rise to the disturbance of equilibrium and vertigo because of the unbalance produced by the continuation of the normal activity of the opposite side. On page 92, when speaking of the causes of diffuse suppuration of the labyrinth he overlooks the frequent invasion of the labyrinth from meningitis, especially the epidemic cerebrospinal type. On the whole the author's discussions of the numerous otologic problems are clear and his deductions are logical and show excellent judg-

ment. We commend especially his discussion of both the acute and chronic types of suppurative otitis media, and his presentation of the proper indications for operative interference in these diseases. In his discussion of sinus thrombosis one gets the impression that the procedure of opening the sinus and ligating the jugular is called for whenever in the presence of a suppurating otitis media the fluctuating temperature suggests absorption of infection into the sinus. The author seems to justify the opening of the sinus in such cases, even when free bleeding from both ends demonstrates no evidence of a thrombus, on the assumption that a small parietal thrombus must be there somewhere which required the operation on the sinus. A more conservative method of handling such cases has demonstrated that in a great many the symptoms characteristic of absorption into the sinus promptly disappear after cleaning out the infection about the sinus wall. This problem of handling cases suspected of sinus involvement is not sufficiently analyzed, nor does he discuss the difficult problem of how to proceed in the not uncommon situation where symptoms pointing to a probable sinus involvement occur in cases of bilateral otitis media. These are criticisms of minor importance. The book will be found an excellent and safe guide for those undertaking the study of otology. The text is too voluminous to be practical for the use of undergraduate students.

INVESTIGATION OF THE CENTRAL NERVOUS SYSTEM. Part I. Methods and Instruments. By R. H. Clarke, M.A., M.B. Part II. Atlas of Photographs of the Frontal Sections of the Cranium and Brain of the Rhesus Monkey (Macacus Rhesus). By R. H. Clarke, M.A., M.B., and E. E. Henderson, B.A., M.B., F.R.C.S. The Johns Hopkins Hospital Reports (Special Volume). Paper. Price, $5. Pp. 172. Baltimore: The Johns Hopkins Press, 1920.

The purpose of this volume is to describe mechanical devices which will direct needles and similar fine instruments for intracranial operations, substituting mechanical for visual direction. With the instrument as perfected by the authors, the operator may get his needle within a 2 mm. circle of any given portion of the brain every time. The instrument should be very useful, therefore, in enhancing our knowledge of the anatomy, physiology and surgery of the brain. By its use, heretofore inaccessible portions of the brain, e. g., the central nuclei or any minute portion of them, can be stimulated electrically or directly by drugs without the slightest mutilation of the structures surrounding them. Again, localized lesions of any size can be made in any portion of the brain or cord with practically no injury to any of the surrounding cerebral, cerebellar or cord tissue. The authors describe the instruments in detail, which makes it possible to conduct highly accurate researches in the field of nervous physiology. The first paper on this subject was published by the late Sir Victor Horsley (in *Brain* **31,** 1908). Part of the atlas appeared in the *Journal für Psychologie und Neurologie* **21**:273, 1914.

A TEXTBOOK OF GYNAECOLOGICAL SURGERY. By Comyns Berkeley, M.A., M.C., M.D., Gynaecological and Obstetric Surgeon to the Middlesex Hospital, and Victor Bonney, M.S., M.D., B.Sc., Assistant Gynaecological and Obstetric Surgeon to the Middlesex Hospital. Second edition. Cloth. Price, $11 net. Pp. 829, with 505 illustrations. New York: Paul B. Hoeber, 1920.

This edition presents many excellent features. The opening remarks on the bearing of the surgeon and speed in operations are excellent. The minute descriptions of operative equipment indicate a large clinical experience, although it might be said that there is too much detail on instruments, suture material, sterilization, etc. The authors sanction the granny knot and advocate half inch buried catgut ends, both details contrary to the usual American procedure. The chapter on examination and preparation of the patient contains excellent detailed instructions, superfluous for most specialists in this field, but invaluable to the younger man and the general surgeon in smaller communities. The operations on the vulva and vagina are the typical ones, well illustrated, and tersely but completely described; and here, as well as throughout the book, there is abundant evidence of an ample clinical material. In the main the authors have selected in their operative technic the approved procedures. The indications are well put, the operative steps clearly stated, and the dangers thoroughly canvassed. Especially praiseworthy is the chapter on the treatment of myomas, the authors having incorporated the latest generally accepted views on conservative surgery of the uterus in the childbearing period. A little more space devoted to the underlying pathologic condition would materially enhance the value of the text. By far the best chapters are those on postoperative complications, in which the authors display convincingly their grasp of the clinical problems that confront the gynecologist. The volume is well worth careful reading, and should find a place in the library of every gynecologist and abdominal surgeon.

A HANDBOOK OF MIDWIFERY FOR MIDWIVES, MATERNITY NURSES AND OBSTETRIC DRESSERS. By Comyns Berkeley, M.A., M.C., M.D., Obstetric and Gynaecological Surgeon to the Middlesex Hospital. Fifth edition. Cloth. Price, $2.25. Pp. 550, with 75 illustration. New York: Paul B. Hoeber, 1921.

This is a comprehensive little book, designed to meet the requirements of pupil midwives and also to be of help to the practicing midwife. It is well illustrated for a work of its size. The subject matter is well arranged for teaching purposes, and the size of the volume recommends it for pupil use. The style is extremely simple and should be comprehensible to any fairly well educated student. In addition to the treatment of obstetric subjects it includes short discussions of the elements of physiology, bacterial infection and immunity, and the principles of domestic and personal hygiene. There is also a chapter on the action of drugs in midwifery practice. At the end of the book is a short quiz compend founded on the rules of the Central Midwives Board. There are numerous slight inaccuracies throughout the text, but on the whole the book is well calculated to fill the requirements of the students for whom it is designed.

TUBERCULOUS SALPINGITIS. A Clinical Study of 200 Cases. By J. P. Greenberg. The Johns Hopkins Hospital Reports. Volume XXI, Fasciculus II. Paper. Price, $1. Pp. 57, with 4 illustrations. Baltimore: The Johns Hopkins Press, 1921.

This is an excellent report of the cases of tuberculosis of the fallopian tubes and of the other female generative organs occurring at the Johns Hopkins Clinic. The author gives a comprehensive review of the literature and brings the work up to date, making it an excellent reference work for those interested in this subject. The treatment is ably discussed and outlined with especial reference to the problem of drainage in these cases.

AN ATLAS OF THE PRIMARY AND CUTANEOUS LESIONS OF ACQUIRED SYPHILIS IN THE MALE. By Charles F. White, O.B.E., M.B., Major Royal Army Medical Corps, and W. Herbert Brown, M.D., Physician for Diseases of the Skin, Victoria Infirmary, Glasgow, with a Foreword by Lieut.-General Sir T. H. J. C. Goodwin, K.C.B., D.S.O., K.P.H., Director-General Army Medical Service. Cloth. Price, $9. Pp. 32, with 79 illustrations. New York: William Wood and Company, 1920.

This is a well illustrated article on clinical syphilis. It records a large and useful war experience. One objection to it is the same that pertains to nearly all the foreign books we are now receiving—its price is out of all proportion to its value.

DIAGNOSTIC AND THERAPEUTIC TECHNIC. A Manual of Practical Procedures Employed in Diagnosis and Treatment. By Albert S. Morrow, A.B., M.D., F.A.C.S., Consulting Surgeon to the Nassau Hospital, Mineola, L. I. Third edition. Cloth. Price, $8 net. Pp. 894, with 892 illustrations. Philadelphia: W. B. Saunders Company, 1921.

The general practitioner will find much useful information in this manual. One of the chief advantages of the book lies in the illustrations, which are numerous, clear, well selected and carefully arranged. It has been brought up to date by a thorough revision of the former editions, and the practical character of the former edition has been maintained.

ESSAYS ON SURGICAL SUBJECTS. By Sir Berkeley Moynihan, K.C.M.G., C.B. Cloth. Price, $5. Pp. 253, with 17 illustrations. Philadelphia: W. B. Saunders Company, 1921.

All of the essays in this volume have appeared in periodicals, but a few revisions and additions have been made. The essays are equally divided between the scientific medical and the historical or literary medical subjects. The volume, which is dedicated to the Mayo brothers, opens with the Murphy memorial oration. The type, a heavy face, easily readable, is artistic and the volume is quite suitable as a gift book.

Medicolegal

Barred Testimony of Physician and of Assistant

(Manufacturers' Life Ins. Co. v. Brennan et al. (U. S.), 270 Fed. R. 173)

The United States Circuit Court of Appeals, First Circuit, says that the Porto Rico statute relative to physicians as witnesses was obviously intended to be so framed as to avoid the doubts and difficulties encountered by various courts in the United States, in construing and applying earlier analogous enactments, while protecting in all essential particulars the privilege grounded on the confidential relation of physician and patient. Whether perfection in that regard has been attained may well be doubted. The statute provides, among other things, that:

> A physician or surgeon or the assistant of either of them cannot, without the consent of the patients, be examined in a civil action as to any information acquired in attending the patient, which was necessary to enable the physician or surgeon to prescribe or act for the patient; but this subdivision does not apply in an action between a physician or surgeon and his patients in which the treatment of the patient by the physician or surgeon is in issue And provided, that a physician or surgeon is competent to testify as to the cause of the death of any person. . . . In an action brought by the beneficiary to recover on a policy of life insurance, taken out by the person whose life was insured, a physician or surgeon may, with the consent of the beneficiary, testify as to any information acquired by him in attending the deceased, but must not be compelled to so testify.

In this case, which was an action brought by the beneficiaries on a life insurance policy, a physician testified that he had attended the insured, one Brennan, seven or eight times, including two or three times during his last sickness; also, without objection, that he had certified that the cause of the insured's death was pulmonary tuberculosis. Counsel for the insurance company then addressed to the physician as an expert a series of questions intended to bring out the reasons for his opinion that the insured died of pulmonary tuberculosis. In affirming a judgment in favor of the beneficiaries, the court holds that a ruling was right, excluding, on objection, such questions. There was no evidence warranting a finding or ruling that the beneficiaries had waived their rights under the statute. It was equally plain that, if the physician had been permitted to answer the questions, or, as it was said, to testify at length and fully as to the cause of death of the insured, he would have grounded his testimony in large part, if not entirely, on information acquired by him in attending the insured as his patient, and presumably necessary to enable him to prescribe for the patient. The proviso "that a physician or surgeon is competent to testify as to the cause of the death of any person" is not to be construed as admitting evidence, not only of the cause of death, but of all the reasons which led the attending physician to the conclusion stated.

The court also holds that where a physician, who was a bacteriologist employed in laboratory work as an intern in a hospital, was called on by the insured to make an examination of his sputum, the testimony of such physician tending to show that the sputum indicated tuberculosis was, on a motion therefor, properly stricken from the record, as the statute required the exclusion of the evidence, the insured having been brought to him by the medical director of the hospital, who as a physician had been consulted by the insured and who testified that the bacteriologist was an assistant under his direction, as to any patient coming to the hospital.

Right to Sue Employer for Requested Services

(Feldstein v. Buick Motor Co. (N. Y.), 187 N. Y. Supp. 417)

The Supreme Court of New York, Appellate Term Department, says that its investigation failed to disclose any case in which the precise question here presented had been passed on, nor did counsel cite any apposite authorities. This action was brought by the plaintiff, a physician, to recover the reasonable value of professional services he rendered at the request of the defendant's superintendent to several of the defendant's employees, who were injured in the course of their employment. The defendant resisted the claim, contending that under the workmen's compensation law of New York State the plaintiff's exclusive remedy to recover the money value of his services was by application to the industrial commission, on whom the law imposed the duty of fixing the plaintiff's fees, and hence that the municipal court in which this action was brought had no jurisdiction over an action of this character. There was no dispute as to the rendition of the services, nor as to their reasonable value. Unconvinced by the defendant's legal contention, the municipal court rendered judgment for the plaintiff, which is here affirmed.

The facts and the law involved in a case wherein an employee attempted in an action at common law to enforce her claim against her employer for medical services, when the employer had refused to provide any, had no application to the case at bar. Here the employer contracted for the plaintiff's services, not the employee. Here the physician was endeavoring to enforce his claim against the employer. Might he enforce his claim by an action at common law, or was he by statute restricted to an application before the industrial commission for the fixation of his fees?

The compensation law requires that an injured employee be given necessary medical services, when injured in the course of his employment. That duty primarily falls on the employer. If he refuses the employee's request for such aid, or neglects to furnish the proper service, the employee may select his own physician. Manifestly, therefore, the defendant here was legally obligated to furnish the services to its injured employees for the value of which the plaintiff sought to recover in the instant case. Read in the light of the legislative intent and purpose, it seems clear that the provision of the law that "all fees and other charges for such treatment and services shall be subject to regulation by the commission" has reference only to fees and charges incurred by the working man for medical treatment, when the employer refuses or neglects to provide such treatment. No attempt to regulate private arrangements entered into between the employer and the physician he might select is either expressly or by implication to be spelled out of its provisions, and wisely so, for in no way could that be a matter of public concern. Nor is there any plan or schedule set forth for enforcement thereof. Recourse to a court of law therefore follows as the sole remedy, in the absence of a proper, expressed and comprehensive provision for enforcement under the act. It is clear, therefor, that when the physician's claim is based solely on an agreement with the employer, and is not a part of the injured workman's claim for compensation, the compensation commission is without legal authority to fix the fee and enforce it, and the physician still retains his right to prosecute his claim in a common-law action.

Admissibility of Physical Demonstrations in Court

(Friedler v. Hekeler (Conn.), 112 Atl. R. 651)

The Supreme Court of Errors of Connecticut says that the physical demonstration before the jury of alleged muscular limitations is permissible within the limits of sound judicial discretion. When the demonstration amounts only to the use of the injured party as an exhibit to display some relevant fact or condition already testified to, whose existence or nonexistence is apparent on inspection, no oath is required. But when the demonstration is carried to the point of using the injured party as a witness to prove the truth of a material and disputed fact by inarticulate muscular contractions instead of by words, it ought to be conducted under the sanction of an oath. When it may be doubted whether the injured party is a competent witness, the necessary sanction may be provided by causing the demonstration to be conducted by a properly qualified witness, who thus makes it a part of his own testimony. In this personal injury case error was assigned in permitting the plaintiff's attorney to exhibit her before the jury and question her and direct her, she not being under oath and incapable of taking oath, being but a child about 5½ years old. The incident occurred while a physician was on the witness stand, testifying as to the extent and character of the plaintiff's injuries. He had already testified that a scar above her left eye tended to pull the eyelid upward so that the lid did not cover the eye completely, especially during sleep; but added that the child could close her eye with forcible constriction fairly well. Thereupon the plaintiff's counsel called the little girl to him and

asked her to show the jury to what extent she could close her eye. Even assuming that the performance had an evidential value due to the conduct of the child herself, she being too young to understand the nature of an oath, the court thinks that the demonstration might be regarded as a part of the physician's testimony and under the sanction of his oath. It was claimed and admitted on that ground, and properly so, for if the child's conduct before the jury did not correspond with the physician's testimony as to her physical capacity, the insincerity of her performance could have been developed on his cross-examination. Moreover, immediately after the alleged offending ruling was made, the trial court suggested that it would be better to let the physician demonstrate, and thereupon he took the child in hand, and without further objection proceeded to demonstrate her control over the muscles of her eye. If, therefore, it be assumed that the original performance was evidential and not under oath, any error in failing to direct the jury to disregard it was cured by the immediate repetition of the same performance under the physician's oath and without objection.

Society Proceedings

COMING MEETINGS

Amer. Acad. of Ophthal. and Otolaryngology, Philadelphia, Oct. 17-22.
American Association of Railway Surgeons, Chicago, Oct. 18-20.
American Child Hygiene Association, New Haven, Conn., Nov. 2-5.
American College of Surgeons, Philadelphia, Oct. 24-28.
American Public Health Association, New York, Nov. 14-18.
American Society of Tropical Medicine, Hot Springs, Ark., Nov. 14-15.
Colorado State Medical Society, Pueblo, Oct. 5-7.
Hawaii, Medical Society of, Honolulu, Nov. 21.
Idaho State Medical Association, Twin Falls, Oct. 6-7.
Medical Association of the Southwest, Kansas City, Mo., Oct. 25-28.
Mid-Western Association of Anesthetists, Kansas City, Mo., Oct. 24-28.
Mississippi Valley Medical Association, St. Louis, Oct. 13-15.
Missouri Valley, Medical Society of the, Kansas City, Mo., Oct. 25-28.
Pennsylvania, Medical Society of the State of, Philadelphia, Oct. 3-6.
Southern Gastro-Enterological Association, Hot Springs, Ark., Nov. 14-17.
Southern Medical Association, Hot Springs, Ark., Nov. 14-17.
Tri-State District Medical Society, Milwaukee, Wis., Nov. 14-17.
Vermont State Medical Society, St. Albans, Oct. 13-14.
Virginia, Medical Society of, Lynchburg, Oct. 18-21.

KENTUCKY STATE MEDICAL ASSOCIATION

Seventy-First Annual Meeting, held at Louisville, Sept. 19-22, 1921.

The President, DR. J. A. STUCKY, Lexington, in the Chair

SYMPOSIUM ON MALIGNANCY

Cancer of the Breast

DR. J. GARLAND SHERRILL, Louisville: The mortality from cancer of the breast has increased within recent years (63 per thousand in 1909 to 81 per thousand in 1915, from the United States registration area), particularly in the centers of population. This increase is due, in part, to more accurate diagnoses and registration, and, in part, to a rather evident increase in the disease. The subject of mammary neoplasms is worthy of careful consideration for two special reasons: (1) to urge on the profession the necessity of a campaign for education of the public, so that these patients may promptly come under skilful surgical care, and (2) to emphasize the fact that the diagnosis of breast cancer in the early stages is by no means easy even to those most experienced in such work.

Treatment of Malignant Uterine Conditions with Radium

DR. WOOLFOLK BARROW, Lexington: I have followed the advice of Cameron of using 100 mg. of radium element, 50 mg. inside the uterus, and 50 mg. across the cervix, thereby obtaining a maximum dosage by cross firing. The radium is held in position by gauze packing in the vagina. A large amount of this gauze is used, as it not only holds the radium in position, but it also pushes away the bladder and rectum, which is necessary in preventing a burn of these structures. The time of application depends on the extent, depth and characteristics of the cancer. My results in these cases have been gratifying. I believe that radium is the method of choice in every case of cancer of the cervix regardless of the extent of the cancer.

Malignancy of the Uterus

DR. LOUIS FRANK, Louisville: In early carcinoma of the cervix, although radical operation continues to be a justifiable procedure, as good, if not better, results, in view of the primary mortality, are obtained by radium treatment. All borderline cases should be treated with radium. Late cases may be improved and palliated by radium as by no other means at our command. If the five year period of curability is to be accepted as indicating a cure, then the results of radium treatment surpass by far those obtained by the profession at large in the treatment of cancer of the cervix by surgical means.

Necessity for Early Recognition of Cancer of Gastro-Intestinal Tract

DR. JOHN H. BLACKBURN, Bowling Green: If any material improvement is to be made in our treatment of cancer of these parts, it must come from an earlier diagnosis and earlier operative treatment. In any case with a suspicious history of stomach trouble, the methods of diagnosis are physical examination, gastric analysis, and roentgen-ray examination. Cancer of the sigmoid and rectum can be diagnosed by the local and general symptoms, by the history, physical examination and roentgen-ray examination. When all the means of diagnosis afford a well founded suspicion of cancer in the stomach or intestine, the abdomen should be opened and proper surgical removal of the tumor done.

Malignancy of the Rectum

DR. BERNARD ASMAN, Louisville: That prevalence of rectal malignancy is greater than heretofore has been generally believed. The early symptoms are not always indicative, and diagnosis is often delayed. Investigation of the rectal interior should be made a routine part of every general examination. Precancerous lesions of the rectum should receive adequate early treatment to prevent malignant transformation. In operable cases of malignancy of the rectum, the proper treatment is radical removal; but radium and the roentgen ray are useful in preventing or limiting metastasis. Preliminary celiotomy and temporary or permanent colostomy should be made in practically every case of rectal cancer. When the disease has already progressed to an inoperable stage, palliative treatment is indicated, the original neoplasm being allowed to remain undisturbed.

Diagnosis of Urologic Diseases

DR. WILLIAM T. BRIGGS, Lexington: Previous infections may explain etiologically urinary pathology. Trauma is often the cause of movable kidney, hydronephrosis and perinephritic abscess. Urinary disturbances in the past should be considered as having a close rather than remote relationship to the present illness. Pain may point unmistakably to the urinary tract or it may simulate closely pain seen in disease of the gallbladder, the appendix, or other abdominal organ. It may even effect the upper extremities. Pain in the renal area occasionally occurs in prostatitis and vesiculitis. Almost any renal or vesical pathology may cause frequent urination, so its presence simply suggests the upper urinary tract, but it is well to remember that it is more noticeable at night in early renal tuberculosis, prostatic hypertrophy and pyelitis. Rectal examination with a woven catheter in the prostatic urethra is the best way to diagnose cancer of the prostate since cancer usually originates in the posterior lobe. With cystograms a diagnosis of vesical diverticula is often possible when cystoscopy is unsatisfactory, and in cancer of the bladder a filling defect can often be seen at the location of the tumor.

Treatment of Malignant Conditions with Radium

DR. WILLIAM J. YOUNG, Louisville: Radium is indicated in the treatment of both precancerous and cancerous cervix lesions; also in internal or deep malignancies, with certain reservations, not to supplant surgery, but as an important adjunct. In malignancy of the uterus, surgery is preferable. In cancer involving the mouth, nares, nasopharynx, esophagus, stomach, breast, urinary bladder, prostate and rectum, benefit

has been derived from the application of radium and the roentgen ray. In cutaneous lesions radium is the treatment *par excellence*.

Surgical Treatment of Certain Types of Dyspepsia

DR. STUART MCGUIRE, Richmond, Va.: The unsatisfactory results which sometimes follow operations for the cure of dyspepsia may be classed under four heads: (1) failure to recognize the true cause of the symptoms; (2) failure to apply the proper technic to meet the indications; (3) failure of surgery to develop a satisfactory operation to correct certain conditions, and (4) failure properly to direct and supervise the patient's posthospital treatment. The postoperative treatment of patients is carried out during their convalescence at the hospital under the supervision of the surgeon. The posthospital treatment is continued after their return home under the direction of their family physician. Only by cordial cooperation between surgeon and physician can the best results be secured for these patients.

Diagnosis and Pathology of Bladder Tumors

DR. HERBERT BRONNER, Louisville: Hematuria, especially of the painless variety, should be regarded as a dangerous condition until proved otherwise. Prompt cystoscopy should be resorted to in all such cases in order to make an early diagnosis. Before deciding on the best operative procedure, we should endeavor to determine the pathology by histologic examination, cystoscopic picture, results of high frequency treatment and palpatory signs.

Surgical Treatment of Goiter

DR. JOHN R. WATHEN, Louisville: If we wish to obtain the highest percentage of permanently cured or markedly improved patients and also keep our mortality at the lowest figure, we should (1) operate on cystic and adenomatous goiters before they become so large as to encroach on the trachea and produce dyspnea or degenerate into the toxic types from long standing; (2) we should study more carefully our exophthalmic cases and prepare them properly before we even attempt to do a preliminary pole ligation as a step in advance of a later more radical operation; (3) we should give toxic adenomas a still more careful study and look far beyond the enlarged thyroid for degenerative changes in the cardiovascular system and important organs, as the liver and the kidneys.

Newer Fads of Obstetrics

DR. EDWARD SPEIDEL, Louisville: True conservatism consists in being thoroughly posted on the condition of the patient in labor, allowing nature a reasonable time to effect a delivery, but using proper interference at once, the moment there is a hitch. All of the newer fads are sponsored by men who stand high in the profession, and it is reasonable to suppose that an obstetric expert in ideal surroundings can with impunity attempt things that cannot be imitated by the general practitioner in the home without assistance.

Treatment of Neurosyphilis

DR. H. J. FARBACH, Louisville: Prevention of neurosyphilis depends on the physician who first treats the patient. Spinal puncture should always be made and the fluid examined. In no other way can the diagnosis be perfected. Early diagnosis is imperative to secure the best ultimate results. Treatment is both specific and general. Cases may be divided into three classes: (*a*) ill-defined types; (*b*) tabes and (*c*) paresis. The ill-defined types are best treated by intravenous neo-arsphenamin and spinal drainage. In tabes and paresis the Swift-Ellis method should be employed.

Blood Transfusion

DR. J. ROWAN MORRISON, Louisville: The conditions in which blood transfusions are indicated may be epitomized as being those which indicate the necessity of restoring the lost or impaired body tissue (blood) by a homologous transplant. The definite effects of transfused blood are restoration of the bulk of the circulating fluid; provision of oxygen and assimilable pabulum for tissues; increase of the coagulability; stimulation of the hematopoietic organs, and increase of resistance to infection by its antitoxic and bactericidal properties. Transfusion is indicated in hemorrhage, whether medical or surgical, and such conditions of poisoned blood as carbon dioxid poison, chronic hemorrhage or chronic devitalizing state of the blood, such as occurs in carcinoma, in chronic nephritis, pernicious anemia and the leukemias. It is indicated in the acute toxic septic conditions. It is important to select a donor as regards health and type of blood. As to methods of transfusion, apparently the citrated method gives the best results to the majority of operators, although the Kimpton tube and such methods offer a safe and effective means of unaltered blood when the donor is willing to make the sacrifice for such method.

Immediate Repair of Lacerations Versus Delay

DR. ALICE N. PICKETT, Louisville: The immediate repair of lacerations is advocated on the delivery table in clean cases when the woman's condition is good, and when it is believed that we are so equipped as reasonably to expect good results. When such favorable conditions do not exist, the repairs are best done within thirty-six hours, which repairs can be justly classified as immediate.

Pellagra, with Special Reference to the Pathologic Evidence of Infection

DR. B. E. GIANNINI, Kenvir: The pathologic evidence which shows that pellagra is infectious may be thus summed up: (1) a relative increase of lymphocytes and a lymphatic infiltration of the brain with mononuclear cells; (2) pellagra shows an increase in lymphocytes of the cerebrospinal fluid; (3) the disease shows at certain stages a marked leukocytosis similar to that in malaria; (4) pellagra is benefited by arsenic treatment; (5) the nervous system is involved centrally. Pellagra, like leprosy, has peripheral nerve formications, burning numbness and pain; (6) pellagra, like malaria, shows a complete absence of eosinophilia; (7) diarrhea is a characteristic of infectious diseases rather than chronic intoxication, as illustrated by cholera and some forms of malarial fever; (8) pellagra produces changes in the eye and often the formation of cataracts.

Colitis in Children

DR. PHILIP F. BARBOUR, Louisville: This disease in children is essentially an inflammation of the mucosa of the colon, but unfortunately it is not always limited to the mucosa nor does it confine itself to the colon, but usually involves also the ileum, sigmoid flexure, and even other portions of the intestinal canal directly or through the sympathetic system. The symptoms naturally vary with the location, extent, intensity, etc., of the inflammation, but, in general, the characteristic features will be the presence of mucus in the stools mixed with more or less blood, and accompanied by toxemia and tenesmus. Toxemia and tenesmus occur only when there is an involvement of the sigmoid flexure and the rectum, and vary in severity with the intensity of the local infection. Antiseptics have a slight and rather a disappointing action on intestinal bacteria. Those which are not also constipating, such as red mercuric iodid or mercuric chlorid in small doses, sodium sulphocarbolate, etc., may be used. The acidophilic bacteria, in conjunction with a carbohydrate diet, will be of benefit in cases of infection by the bacillus of dysentery. If the gas bacillus is present, these would be contraindicated and the diet should be protein. Milk, being a mixed food, should be stopped immediately on the beginning of any kind of diarrhea. If the child has suffered from a prolonged and severe attack, it may be necessary cautiously to give boiled skimmed milk, protein or buttermilk according to tolerance.

Rectal Affections Observed in Children

DR. GRANVILLE S. HANES, Louisville: Prolapse of the rectum and rectal polypi are observed more frequently in children than in adults. Practically all prolapses in children yield to treatment. A polyp that might never be detected with the finger may be easily seen through the proctoscope. Most children who are unable to retain urine over normal periods of time and do not have some disease or unnatural condition of the genito-urinary system have a deep-seated infection in the anterior rectal wall which is responsible for the frequent urination.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Dermatology and Syphilology, Chicago

September, 1921, **4**, No. 3

Research Problems in Dermatology. J. F. Schamberg, Philadelphia.—p. 293.
Sachs-Georgi Reaction in Spinal Fluid of Patients with Syphilis. W. W. Harryman, Ann Arbor, Mich.—p. 299.
*Recklinghausen's Disease: Its Relation to Endocrine System. O. L. Levin, New York.—p. 303.
Radium Technic in Treatment of Malignant Diseases of Skin. D. Quick, New York.—p. 322.
*Case of Multiple Benign Sarcoid of Boeck-Darier-Roussy. C. W. Finnerud, Chicago.—p. 342.
Four Cases of Lichenoid Trichophytide. C. M. Williams, New York. —p. 353.
Optimum Conditions of Fixation of Complement in Wassermann Test. R. L. Kahn, Lansing, Mich.—p. 358.
Experimental Verification of Significance of Delayed Negative Wassermann Reaction. R. R. Mellon and P. M. Avery, Rochester, N. Y. p. 363.
*Onychia Due to Bacillus Coli Communis. L. Hollander, Pittsburgh.—p. 366.
*Treatment of Larva Migrans. L. W. Ketron, Baltimore.—p. 368.

Recklinghausen's Disease.—Levin believes that Recklinghausen's disease is a complex of cutaneous and general symptoms depending essentially for its etiology on endocrine dysfunction.

Multiple Benign Sarcoid.—The case reported by Finnerud is said to be of special interest because (1) it is associated with bone involvement; (2) it is of mixed type (Boeck and Darier-Roussy); (3) there are no definite concomitant tuberculous findings; (4) there is no response to prolonged therapy of the varieties generally employed in these cases with some or much success. The histologic picture is practically unique, and because it so closely resembled that of a noncaseating tuberculous process, the greatest amount of effort has been directed toward isolation of the tubercle bacillus. A bibliography of the pertinent literature is appended to this article.

Colon Bacillus Onychia.—Two cases of onychia are cited by Hollander in which cultures from the purulent material obtained from the nail bed yielded practically a pure strain of *Bacillus coli-communis.* These two cases permit the assumption of two different routes of conveyance of the infecting organism. The first case, presenting no general symptomatology and rapid relief after surgical interference, may have been a contact infection, while the second case, an autogenous one, through the hemotogenous route.

Treatment of Larva Migrans.—A case of larva migrans is reported by Ketron in which two insects were present in the sole of one foot. Both insects were destroyed by once freezing a 25 cent-sized area around the advancing end of the burrow.

Archives of Neurology and Psychiatry, Chicago

September, 1921, **6**, No. 3

Neurologic Dilemma. S. I. Schwab, St. Louis.—p. 255.
*Intracranial Telangiectasis. E. M. Hammes, St. Paul.—p. 263.
Contrast Between Brain Lesions Produced by Lead and Other Inorganic Poisons and Those Caused by Epidemic Encephalitis. G. B. Hassin, Chicago.—p. 268.
Studies in Asymptomatic Neurosyphilis. I. A. Tentative Classification of Early Asymptomatic Neurosyphilis. A. Keidel and J. E. Moore, Baltimore.—p. 286.
Comparative Study of Sugar Content of Spinal Fluid in Diseases of Nervous System. L. D. Stevenson, St. Louis.—p. 292.
*Epidemic Encephalitis (Lethargic Encephalitis). L. B. Hohman, Baltimore.—p. 295.

Intracranial Telangiectasis.—Two cases of probable cerebral telangiectasis are reported by Hammes. In one case a diagnosis of jacksonian epilepsy due to irritation of the right motor region, cause undetermined, was made and craniotomy was performed. Enormously dilated blood vessels were found on the pia over the right motor region, arranged in the form of an irregular circle. These were ligated in four places and the dura was closed. During the next twenty-four hours the patient had twelve convulsions of such severity that chloroform had to be administered. The following night he had two more and was then placed on two-thirds grain luminal three time a day. Since then he has had only one unconscious seizure but at about weekly intervals he has had twitching of the left arm with blurred vision lasting a few minutes. In the second case a diagnosis of beginning dementia praecox or of a cyst secondary to the trauma in the right frontal region was made. The dura was found adherent to the skull. The dura appeared bluish, which was due to a marked angiomatous condition on the surface of the brain cortex. This mass of blood vessels covered the entire operation field and appeared like a nest of bluish angleworms. Vessels were ligated in several places; bleeding was profuse but easily controlled. The patient made an uneventful recovery both physically and mentally.

Psychosis of Epidemic Encephalitis.—Hohman analyzes the psychotic features of epidemic encephalitis as they have been observed in a group of twenty-three cases. A study of the psychotic data has made diagnosis possible in some patients who presented few neurologic signs, and the mental picture has been found to offer valuable confirmatory evidence in doubtful cases with neurologic findings. Several characteristic symptoms have been made out as well as certain general reaction types. While the reaction types are not distinctive and decisive, they are often suggestive and helpful. Nine syndromes are presented in the order of their diagnostic importance.

Boston Medical and Surgical Journal

Sept. 8, 1921, **185**, No. 10

*Reduction of Hypertension in Unusually Difficult Case by Means of "Salt-Free" Diet. M. J. Konikow and M. Smith, Boston.—p. 281.
Differential Diagnosis Between Tuberculosis and Certain Other Chronic Pulmonary Infections with Special Reference to Late Effects of Gas Poisoning and Influenza. J. B. Hawes, Boston.—p. 291.
Psychiatric Aspects of Epidemic Encephalitis. H. R. Stedman, Boston. —p. 295.

Hypertension Reduced by "Salt-Free" Diet.—Konikow and Smith cite the case of a woman who, at the age of 30, after giving birth to her only child, was operated on for tuberculous salpingitis and localized tuberculous peritonitis, when both tubes and ovaries were removed. Notwithstanding the character of this operation the patient continued to menstruate for eight years afterward, when the menopause occurred. The patient's troubles began with the established menopause. She began to suffer frequently with rheumatoid, muscular and sometimes obscure pains in the joints and many other parts of the body; annoying itch; insomnia and headaches; pulse invariably above 80, frequently reaching 100, accompanied by a normal temperature. Physical examination revealed nothing abnormal about the chest or abdomen; urine, negative; Wassermann, negative; systolic blood pressure, from 230 to 275 mm. All attempts to reduce the hypertension failed until the patient contracted an influenzal pneumonia, during which the systolic pressure began to fall steadily until at the height of the fever it reached 130 mm., and on her complete recovery rapidly rose again to the usual height. The patient was put on a salt-poor diet, i. e., a diet made up of foods containing a minimum amount of chlorid. The systolic blood pressure steadily and definitely fell to 170 mm. on the last day of the "salt-free" diet, and rapidly rose again with the reintroduction of the previous unrestricted diet. These observations support the view that lessened intake of salt is a lowering factor in hypertension cases.

Sept. 15, 1921, **185**, No. 11

Legislative Aspects of Vaccination. S. B. Woodward, Worcester.—p. 307.
Cancer. J. E. Talbot, Worcester.—p. 310.
Etiology of Hysteria. M. Baff, Worcester.—p. 313.
*Two Cases of Blastomycosis. W. B. Howes and P. F. Morse, Detroit. —p. 315.
"Surgical Aspects of Abdominal Tuberculosis in Children." W. E. Ladd, Boston.—p. 317.
Value of Quantitative Perimetry in Study of Postethmoidal Sphenoidal Sinusitis Causing Visual Defects. C. B. Walker, Springfield, Mass. —p. 321.
*Treatment of Fracture of Neck of Scapula. F. J. Cotton and W. J. Brickley, Boston.—p. 326.

Blastomycosis of Lung.—Howes and Morse report two cases of blastomycosis in which there was pulmonary as well as cutaneous involvement. In one of the cases there was also pericardial blastomycosis. The spleen was diffusely spotted over with tubercle-like points varying in size from a pinhead

to a pea, but on pressure exuding the pinpoint-like droplets of pus. There were a few very early areas in the right kidney, and the right suprarenal had three such spots in its cortex.

Fracture of Neck of Scapula.—In the case cited by Cotton and Brickly there was no trace of the classical picture started by Astley Cooper, of a shoulder dropping downward, replaceable, but tending to fall away again from gravity pull. There was a displacement inward with the shoulder obviously driven in, and held in the abnormal position by muscle spasm. The patient was etherized and the deformity reduced by leverage of the humerus across the fist in the axilla as a fulcrum. Reduction was obvious. Before she came out of the ether, a heavy wedge pad was set in the axilla, the arm was brought to the side and held with an adhesive swathe as tightly as might be without seriously checking the circulation. A pillow rolled lengthwise was strapped vertically to the middle of the upper back with adhesive, and a sandbag, loosely filled, weighing perhaps 3 pounds, laid on the front of the shoulder. The mattress beneath, originally too flexible, was kept flat over "bed boards." This apparatus was kept on not quite three weeks, requiring a considerable use of hypnotics to render it even tolerable. Then the patient was allowed up, still with the axillary pad and swathe. Massage regularly, after two weeks, and motion after three weeks brought about a recovery substantially complete within eight weeks. There is now no deformity, limitation of motion or weakness resulting.

Journal of Experimental Medicine, Baltimore

Sept. 1, 1921, **34**, No. 3

*Studies on Complement Fixation. I. Rate of Fixation of Complement at Different Temperatures. R. L. Kahn, Lansing, Mich.—p. 217.
Measurement of Growth of Tissues in Vitro. A. H. Ebeling, New York.—p. 231.
*Studies on Pneumococcus Immunity. I. Active Immunization of Monkeys Against Pneumococcus Type I Pneumonia with Pneumococcus Type I Vaccine. R. L. Cecil and G. I. Steffen, Washington, D. C.—p. 245.
Development of Heterakis Papillosa in Fowl. H. W. Graybill, Princeton, N. J.—p. 259.
Lymphopenia Following Exposure of Rats to "Soft" Roentgen Rays and S-Rays of Radium. J. C. Mottram and S. Russ, London.—p. 271.
*Thyroidectomy and Parathyroidectomy with Relation to Development of Immune Substances. E. E. Ecker and H. Goldblatt, Cleveland.—p. 275.
Christispira in North American Shellfish. Spirillum Found in Oysters. H. Noguchi, New York.—p. 295.

Rate of Fixation of Complement.—It is shown by Kahn that by complement fixation studies with protein antigens and specific immune rabbit serums the rate of fixation of complement is determined by the concentration of antibodies in the immune serums, that the greater part of fixation of complement takes place during the first hour, and that fixation is practically completed at the end of four hours at icebox temperature. It is further shown that the rate of fixation of complement is practically the same as icebox, room, and water bath temperatures, the tendency being for slightly stronger fixation at icebox temperature.

Pneumococcus Immunity.—Cecil and Steffen assert that the subcutaneous inoculation of monkeys with three large doses of pneucococcus Type I vaccine confers on them a complete immunity against experimental pneumococcus Type I pneumonia. The intravenous inoculation of small doses of pneumococcus Type I vaccine also confers complete immunity against the homologous type of pneumonia. Specific protective bodies may or may not be present in the serum of monkeys vaccinated against pneumococcus Type I. There appears to be no intimate relation between active immunity against pneumonia and the presence or absence of protective substances in the serum of the vaccinated animal.

Effect of Thyroidectomy on Immune Body Production.—Ecker and Goldblatt found that after thyroidectomy with partial parathyroidectomy the maximum and average hemolytic titers of the serum of rabbits injected intravenously with sheep blood are equal to or higher than those of normal animals similarly injected. Thyroidectomy with partial parathyroidectomy does not inhibit antibody production. This fact is in accord with the results of Garibaldi, Launoy and Levy-Bruhl, Lerda and Diez, and others. Thyroidectomy with partial parathyroidectomy does not cause serious disturbance in the adult rabbit. If the operation is performed properly, the animals survive and only moderate cachexia develops in time. After complete thyroparathyroidectomy a small portion of the animals survive even after developing very severe tetany. Those that recover do not show further signs of serious disturbance, but in time develop a moderate degree of cachexia no greater than that of the thyroidectomized animals. Thyroparathyroidectomized rabbits develop antisheep hemolysin of a uniformly low titer—on an average one fifth that of the controls. Injection of bovine blood into rabbits that survived complete thyroparathyroidectomy from one to two months previously results in the production of hemolysin of a uniformly low titer compared with that of normal animals similarly treated.

Journal of Industrial Hygiene, Boston

July, 1921, **3**, No. 3

Physiologic Effects of Automobile Exhaust Gas and Standards of Ventilation for Brief Exposures. Y. Henderson, H. W. Haggard, M. C. Teague, A. L. Prince and R. M. Wunderlich.—p. 79.
*Influence of Fatigue on Health and Longevity. H. M. Vernon.—p. 93.
*Syphilis and Industry. A. N. Thomson.—p. 99.
*Trinitrotoluene as Industrial Poison. A. Hamilton.—p. 102.

Influence of Fatigue on Health.—The data presented by Vernon appear to indicate that in men of good physique the fatigue of heavy work has, as a rule, but little direct effect on sickness and longevity. It is probable that the excessively exhausting work of the steel melters forms an exception to this dictum, but it seems highly probable that the heavy work of the iron puddlers, of the tinplate mill men, and of the rolling mill men has no injurious effect on health except indirectly, when it induces the men to sit about in damp clothes. The men may be working nearly to the limit of their strength, but the mere fact that they have to continue on the same class of work week after week and year after year must deter them from overstraining themselves, unless they do it unwittingly.

Syphilis and Industry.—If any one, or any combination, of the following easily observable signals can be found, Thomson asserts that further examination for the detection of syphilis is necessary: ataxic gait; mental slowness; defective hearing; voice defects; pupils, irregular, unequal or reacting abnormally to light and accommodation; enlargement of the lymph glands, especially of the epitrochlear nodes; interstitial glossitis; leukoplakia; Hutchinson's teeth; scars not obviously due to injury; cardiac conditions; and altered reflexes, especially knee jerk.

Trinitrotoluene Poisoning.—T. N. T. is absorbed chiefly through the skin and, therefore, the most important part of the prevention of T. N. T. sickness is the protection of the worker against direct contact with it. Next in importance to cleanliness of the premises comes the provision of clean working clothes, socks, and gloves. Examination showed that T. N. T. could probably be continually absorbed from dirty gloves and dirty overalls. The necessity for providing ample washing facilities, hot and cold running water, soap and towels, and the time to use them, is emphasized by Hamilton, not because it is not perfectly obvious in connection with such a poison as T. N. T., but because it was ignored in several of the T. N. T. plants during the war and is ignored in some of the coal-tar dye works even at the present time.

Journal of Infectious Diseases, Chicago

September, 1921, **29**, No. 3

*Experimental Streptococcus Pneumonia and Empyema. III. F. P. Gay and B. Rhodes, Berkeley, Calif.—p. 225.
Methods of Isolation and Cultivation of Anaerobic Bacteria. A. I. Kendall, M. Cook and M. Ryan, Chicago.—p. 227.
Production of Ammonia and Carbon Dioxid by Streptococci. H. Ayers, P. Rupp and C. S. Mudge, Washington, D. C.—p. 235.
*Antirabic Vaccination by Means of Desiccated Virus. R. D'Aunoy, New Orleans.—p. 261.
"Blackhead" in Turkeys. E. E. Tyzzer, M. Fabyan and N. C. Foot, Boston.—p. 268.
Rapid Method of Determining Presence and Type of Botulinus Toxin in Contaminated Foods. P. F. Orr, Boston.—p. 287.
Negri Bodies in Salivary Glands and Other Organs in Rabies. L. Jackson, Chicago.—p. 291.
Protozoan Parasite in Salivary Gland of Dog. L. Jackson, Chicago.—p. 302.
Virulent Micrococcus Catarrhalis in Influenza. P. F. Clark and E. J. Murphy, Madison, Wis.—p. 306.

On Claim That Some Typhoid-Paratyphoid Strains Survive Milk Pasteurization. C. Krumwiede and W. C. Noble, New York.—p. 310.
Bacteriology of Blood of Dogs with Eck Fistula. D. J. Davis and and S. A. Mathews, Chicago.—p. 313.

Experimental Streptococcus Pneumonia and Empyema.—Experimental pneumonia may be produced in the rabbit by bronchial insufflation of very small amounts of a passage culture of hemolytic streptococcus. Histologically this pneumonia is lobular in distribution, necrotizing in effect, does not resolve readily, and is characterized by peribronchial and perivascular edema and later infiltration of mononuclear cells (interstitial bronchopneumonia). It is quite different in character from the pneumonia produced by the pneumococcus. These differences are further marked by the occurrence of pleurisy with effusion, involving by extension both pleural cavities and the pericardium, in the streptococcus infection. On the other hand, septicemia is the rule with the pneumococcus infection but not with the streptococcus. Both forms resulted fatally. The natural route of infection with the streptococcus seems to be from the alveoli to the pleura, rather than by the lymphatics of the larger bronchi. When injections are made into the pleural cavity, the micro-organisms never penetrate through the pleura into the lung tissue. This would militate against the idea of a lymphatic stream from pleura to hilum. Experiments with an artificial respiration chamber seemed to prove that the streptococcus passes from the lungs to the surface of the pleura in a few minutes. It is evident, however, that conclusions derived from such experiments cannot explain conditions in the living body where it is found that involvement of the pleura takes place in a matter of hours (six to twelve) rather than of minutes.

Desiccated Virus for Antirabic Vaccination.—The Harris method of preparing rabies virus with some modifications has been used by D'Aunoy for six years. Adults are given eleven treatments of a total of 17,750 "minimal infective doses," except in severe penetrating injuries of the head when fifteen treatments of a total of 25,750 "minimal infective doses" are administered. The cases of 1,538 treated patients are reported, 697 injured by animals proved to be rabid. One death following complete treatment is reported. No paralysis or other untoward effects have been noted in the series of patients treated. The results reported, on the basis of comparison with similar reports on the use of the original Pasteur dried cord method, argue for the efficaciousness and safety of the desiccated virus method of prophylactic antirabic vaccination.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

September, 1921, **18**, No. 2

Physiologic Action of N-Methylhistamin and of Tetrahydropyrido-3,4-Iminazole ("Imidazolisopiperidin" of Fränkel). H. H. Dale and H. W. Dudley, Hampstead.—p. 103.
*Response to Drugs of Excised Bronchi from Normal and Diseased Animals. D. I. Macht and Giu-Ching Ting, Baltimore.—p. 111.
Epinephrin Hyperglycemia. II. A. L. Tatum, Chicago.—p. 121.
Quantitative Pathologic Studies with Arsenic Compounds. I. Influence of Fasting and Various Diets on Arsphenamin Poisoning and Comparative Toxicity of Arsphenamin Neo-arsphenamin and Para-oxy-meta-aminophenyl-arsenoxid. C. W. Hooper, A. C. Kolls and K. D. Wright, Washington, D. C.—p. 133.
*Effects of Vasomotor Depressants on Volume of Liver. C. W. Edmunds, Ann Arbor, Mich.—p. 155.

Response of Excised Bronchi to Drugs.—Differences in the behavior between bronchial tissue obtained from normal and pathologic lungs have been noted by Macht and Giu-Ching. Normal preparations of bronchial muscle respond promptly and quickly to the action of certain pharmacologic reagents. Bronchial preparations obtained from pathologic lungs even in a very fresh condition, respond to the action of the same drugs much less readily or not at all. This difference in the response between normal and pathologic bronchial preparations would seem to indicate that in the latter case there is an impairment of the normal physiologic properties of bronchial muscle.

Volume of Liver Decreased by Vasomotor Depressants.—Edmunds found that the nitrite group of vasomotor depressants lowers the portal blood pressure and decreases the volume of the liver. These effects are secondary to the changes produced in the general systemic blood pressure. The blood tends to accumulate therefore in other abdominal organs than the liver in contrast to the condition in anaphylactic shock in dogs and also as a result of certain poisons where the liver drains the remaining abdominal organs. In the case of still other vasodilators, such as the depressant substance in dogs' urine, the exact location of the blood when the action is fully developed is not accurately known. This point, it is stated by Edmunds, is a subject requiring further investigation.

Journal of Physiology, Baltimore

Sept. 1. 1921, **57**, No. 2

Artificial Extrapause of Ventricle of Frog's Heart. S. de Boer, Amsterdam.—p. 179.
Researches of Rhythm and Metabolism of Bled Frog's Heart. S. de Boer, Amsterdam.—p. 189.
*Studies on Brain Stem. V. Carbon Dioxid Excretion After Destruction of Optic Thalamus and Reflex Functions of Thalamus in Body Temperature Regulation. F. T. Rogers and S. D. Wheat, Dallas, Texas.—p. 218.
Physiology of Reproduction in Birds. IX. Relation of Stale Sperm to Fertility and Sex in Ring-Doves. O. Riddle and E. H. Behre, Cold Spring Harbor, N. Y.—p. 228.
Id. X. Inadequate Egg Shells and Early Death of Embryos in Egg. O. Riddle, Cold Spring Harbor, N. Y.—p. 250.
Id. XI. Effects of Feeding Soluble Calcium Salts on Reproductive Secretions and on Total Inorganic Constituents of Egg Shell. O. Riddle and M. C. E. Hanke, Cold Spring Harbor, N. Y.—p. 264.
Id. XII. Relation of Nerve Stimuli to Oviducal Secretions as Indicated by Effects of Atropin and Other Alkaloids. O. Riddle and C. V. King, Cold Spring Harbor, N. Y.—p. 275.
*Comparative Studies of Early Reactions in Spinal Cats Produced by Various Methods. V. Prewitt, New York.—p. 291.
*Visceral Sensory Nervous System. X. Vagus Control of Esophagus. A. J. Carlson and A. B. Luckhardt, Chicago.—p. 299.
Quantitative Studies on Intracellular Respiration. V. Nature of Action of KNC on Paramecium and Planaria, with Experimental Test of Criticism, and Certain Explanations Offered by Child and Others. E. J. Lund, Minneapolis.—p. 336.
Gradients of Vital Staining and Susceptibility in Planaria and Other Forms. J. W. MacArthur, Chicago.—p. 350.

Carbon Dioxid Excretion After Destruction of Optic Thalamus.—It is suggested by Rogers and Wheat, as the result of their study, that reflex changes of skeletal muscle tone and of the sympathetic system induced by stimulation of the temperature nerves of the skin involve the thalamus as an essential part of the functional pathway.

Early Reactions in Spinal Cats.—In general, Prewitt says, the length of life after spinal transection is much greater when the cord is severed between the second and third dorsal segments, when no ligations to control hemorrhage are made, and no artificial respiration are given. Body temperature falls appreciably in cats undergoing spinal transection in the region of the first cervical segment.

Vagus Control of Esophagus.—Data are presented by Carlson and Luckhardt which it is stated afford additional evidence that the primary action of many drugs on visceral motor mechanisms depends on the predominant innervation (motor or inhibitory) of the organs. The data indicate that tonic inhibitory innervation via the vagus nerves play a rôle in the motor control of the esophagus and the cardia. But the conditions found in one animal group or species do not necessarily apply to another group or species, as the degree of differentiation in the motor control from the primitive condition appears to vary greatly in different species.

Kentucky Medical Journal, Bowling Green

July, 1921, **19**, No. 7

Infant Feeding. J. H. Pritchett, Louisville.—p. 375.
Diagnosis and Management of Hyperthyroidism. C. W. Dowden, Louisville.—p. 380.
Goiter. B. F. Van Meter, Lexington.—p. 385.
Control of Milk Supply. J. D. Maguire, Lexington.—p. 391.
Significance of Elevation of Temperature. R. J. Estill, Lexington.—p. 394.
Venereal Prophylaxis. W. E. McWilliams, Stanford.—p. 397.
Nonsurgical Drainage of Gallbladder. C. G. Lucas, Louisville.—p. 398.
Treatment of Eclampsia. E. Speidel, Louisville.—p. 408.
Cesarean Section; Indications; Report of Cases. J. H. Peak, Louisville.—p. 410.
Chronic Parenchymatous Nephritis. H. A. Gilliam, Bardwell.—p. 422.
Multiple Osteochondroma in Mother and Son. J. D. Trawick, Louisville.—p. 424.
Syphilis. B. C. Rose, Bryantsville.—p. 426.
Significance of Acidosis in Children. T. M. Marks, Lexington.—p. 428.
Foreign Body Removed from Nasopharynx. J. R. Peabody, Louisville.—p. 433.
Syphilis of Rectum. G. S. Haynes, Louisville.—p. 434.
Case of Meningitis. L. A. Ledermann, Louisville.—p. 436.
Encephalitis; Case Report. W. A. Jenkins, Louisville.—p. 437.

Laryngoscope, St. Louis

July, 1921, **31**, No. 7

Modern Labyrinthology. R. Barany, Upsala, Sweden.—p. 401.
Otosclerosis (Idiopathic Degenerative Deafness). A. A. Gray, Glasgow.—p. 422.
Complications and Sequels of Mastoiditis. E. B. Dench, New York.—p. 429.
Acoustic Method for Training Deaf. M. A. Goldstein, St. Louis.—p. 444.
Effect of Methodic Acoustic Exercises on Hearing Organ of Deaf-Mutes. V. Urbantschitsch, Vienna.—p. 477.
Recent Progress in Surgery of Accessory Sinuses. E. J. Moure, Bordeaux, France.—p. 479.
Review of Twenty-Five Years' Observation in Plastic Surgery, with Special Reference to Rhinoplasty. J. C. Beck, Chicago.—p. 487.
Reestablishing Intranasal Drainage of Lachrymal Sac. H. P. Mosher, Boston.—p. 492.
Cancer of Larynx. St. C. Thomson, London.—p. 522.
Are There Cases of Foreign Body in Lung Impossible of Bronchoscopic Removal? C. Jackson, Philadelphia.—p. 528.
Suspension Laryngoscopy and Its Problems. R. C. Lynch, New Orleans.—p. 539.
Special Forms of Hay Fever and Desensitization. W. Scheppegrell, New Orleans.—p. 549.
Otolaryngologic Education. D. J. G. Wishart, Toronto.—p. 551.
Laryngoscope Twenty-Five Years Ago. M. D. Lederman, New York.—p. 570.

Medical Record, New York

Sept. 3, 1921, **100**, No. 10

Thyroid Action and Fever. E. H. P. Ward, White Plains, N. Y.—p. 399.
Cancer Control. S. W. Little, Rochester, N. Y.—p. 407.
Myocardium and Heart Murmurs; Case Reports. S. E. Earp, Indianapolis.—p. 410.
Rôle of Prostate in Focal Infections. P. S. Pelouze, Philadelphia.—p. 412.
Writer's Cramp: Its Cause and Cure. W. H. Bates, New York.—p. 415.
Chlorazene Treatment of Pellagra. J. W. McCready, New York.—p. 417.
Acute Follicular Tonsillitis. W. W. Griffin, New York.—p. 418.

Sept. 10, 1921, **100**, No. 11

Human Readjustment. (Or Coordination of Structure and Function in Organism as a Whole.) J. M. Taylor, Philadelphia.—p. 441.
Teaching of Medicine and Therapeutics to Undergraduate Students. T. F. Reilly, New York.—p. 447.
Aims of Internal Therapeutics. L. R. Grote, University of Halle, Germany.—p. 449.
Therapeutic Nihilism. F. M. Pottenger, Monrovia, Calif.—p. 451.
Future of Therapeutics. R. W. Wilcox, New York.—p. 453.
What Can the Association of Cardiac Clinics Do? R. H. Halsey, New York.—p. 455.
Rôle of Radium in Surgery. M. V. Abrams, Brooklyn.—p. 457.
Important Factor in Use of Protargol in Gonorrhea. M. Huhner, New York.—p. 459.

Michigan State Medical Society Journal, Grand Rapids

July, 1921, **20**, No. 7

Attainment of Certain Ideals in Obstetrics. A. M. Campbell, Grand Rapids.—p. 263.
Digitalis Therapy. J. B. Whinery, Grand Rapids.—p. 266.
Peripheral Nerve Injuries. W. T. Dodge, Big Rapids.—p. 268.

September, 1921, **20**, No. 9

Giant Magnet in Ophthalmology. R. Connor, Detroit.—p. 329.
*Ocular Findings in Cases of Abnormal Basal Metabolic Rate. L. V. Stegman, Battle Creek.—p. 335.
Sphenoid Sinus. H. L. Simpson, Detroit.—p. 338.
Indications and Contraindications for Use of Pituitary Extract in Obstetrics. R. S. Cron, Ann Arbor.—p. 340.
Scarlet Fever Quarantine. W. N. Braley, Highland Park.—p. 345.
Psoriasis; Etiology and Treatment. G. Van Rhee, Detroit.—p. 348.
Surgery of Pancreas. B. M. Davey, Lansing.—p. 350.
*Sterilization of Nose and Throat Diphtheria Carriers with Ultraviolet Rays. L. C. Donnelly, Detroit.—p. 356.

Ocular Findings and Basal Metabolic Rate.—The ophthalmoscopic finding of a maroon spot edged with pigment in the macular region, or a vacuole in the crystalline lens, prompted Stegman to establish a relationship between this sign and the basal metabolism. An analysis was made of seventy-eight cases, which is here presented. These eighty-nine patients of ages ranging from 12 to 64 had had both a pathologic metabolic rate and a fundus examination. Stegman states that consistently a careful ophthalmoscopic examination has made it possible to "guess" the cases of disordered basal metabolism. In this list are found: seven cases with clear media (four of these were cases of minus metabolism with endemic encephalitis); four vitreous opacities; two remnants of pupillary membranes; two ulcers of the cornea from smallpox pustules; twenty-two specks or spokes; twenty-two vacuoles; twenty both vacuoles and specks or spokes; sixty-four out of seventy-eight, or 82 per cent. had lens opacities, either vacuoles or striae or spokes; sixty-one were minus rates and seventeen were plus. Every case, except two, that had been sent to the metabolism laboratory because vacuoles were found. Only one patient with vacuoles in the lens and the vacies of hypometabolism returned from the laboratory test with a hypermetabolism rate. On further inquiry, he disclosed the fact that he had been taking iodin for many months.

Diphtheria Carriers Sterilized by Ultraviolet Rays.—Donnelly has treated forty or more chronic nose or throat diphtheria carriers with ultraviolet rays from the Kromayer lamp. All the carriers have been sterilized. The ultraviolet rays are projected onto the tonsils through a hollow metal tube applicator 6 inches long, one-half inch in diameter, with the end slanted so that it fits over the tonsil. The rays are applied directly on all portions of the tonsils for from three to five minutes. From one to three applications may be required to entirely cover each tonsil. The tonsils are treated separately. If the cultures come back positive, the same procedure is repeated, giving a four to six minute dose. In 50 per cent. of the cases, one treatement sufficed to sterilize. Only three or four cases have required a third treatment. None have required four treatments.

New Orleans Medical and Surgical Journal

September, 1921, **74**, No. 3

Removal of Twenty-Penny Wire Nail from Bladder. H. W. E. Walther, New Orleans.—p. 149.
*Cancer of Appendix: Report of Two Cases. J. M. Perret, New Orleans.—p. 151.
Unsuspected Sinus Involvement as Sequel to Contagious and Infectious Diseases. E. V. Whitaker, Baton Rouge, La.—p. 155.
Case of Long-Continued Masturbation in a Girl, Cured by Fright. E. M. Ellison, Washington, D. C.—p. 160.
Treatment of Urethritis. M. H. Foster, Alexandria.—p. 165.
*Acute Ileocolitis in Infancy. M. S. Picard, Shreveport.—p. 172.
Recent Progress in Ophthalmology. C. A. Bahn, New Orleans.—p. 182.
Gastro-Intestinal Cases. L. W. Fortier and T. T. Gately, New Orleans.—p. 188.
Treatment of Antepartum Hemorrhage. J. C. Gremillion, Alexandria.—p. 193.
Surgery of Biliary Tract. J. A. Danna, New Orleans.—p. 196.
Cholecystostomy vs. Cholecystectomy. E. D. Martin, New Orleans.—p. 204.

Cancer of Appendix.—In one of Perret's cases operation was advised on account of dyspeptic symptoms and dull pains in appendix region. The patient was a woman, aged 22. She made an uneventful recovery and left the hospital on the ninth day. No idea of the malignant condition of the appendix was suspected at time of operation. Microscopic examination showed carcinoma. The second patient, a female, aged 44 years, complained of abdominal pains for two years. Examination showed a large sensitive mass above the appendix region. A diagnosis was made of appendiceal abscess. A large, hard friable mass was found occupying the head of the cecum, the terminal ileum and the appendix which on further examination, Perret says, showed all the typical structural characteristics of a carcinoma.

Cocoa in Acute Ileocolitis in Infants.—Picard places much faith in the value of cocoa as a food in these cases. He says that cocoa seems to have a special affinity and curative action on the lower intestines. He uses a method of feeding recommended by Myer. The child is fed every four hours. At 6 a. m., cocoa; 10 a. m., cocoa and junket; 2 p. m., broth and scraped beef; 6 p. m., cocoa and junket; 10 p. m., cocoa. In twenty-four hours the stool commences to show semisolid fecal contents. On the third or fourth day toast and egg are given. The coca is made with water, a teaspoonful to the cup of water, sweetened with saccharin; at the end of a week, potatoes and baked apples are added. A number of illustrative cases are cited.

Oklahoma State Medical Assn. Journal, Muskogee

August, 1921, **14**, No. 8

Problem of General Practitioner with Summer Babies. R. K. Pemberton, McAlester.—p. 193.
Infant Feeding. J. L. Day, Norman.—p. 199.
Wassermann Reaction Appeal for Standardization. W. Langston, Oklahoma City.—p. 202.
Cyst of Bartholin's Gland. F. S. Clinton, Tulsa.—p. 204.

Rhode Island Medical Journal, Providence

July, August, September, 1921, **4**, Nos. 7, 8, 9

Problems in Treatment of Diabetes. A. M. Burgess, Providence.—p. 103.
Obstetrics: Two Man Job. P. Appleton, Providence.—p. 108.
Surgery of Salivary Calculi. W. L. Chapman, Providence.—p. 110.
Ocular Tuberculosis. J. W. Leech, Providence.—p. 112.

Tennessee State Medical Association Journal, Nashville

August, 1921, **14**, No. 2

*Unusual Obstetric Complications Necessitating Operative Interference. E. T. Newell, Chattanooga.—p. 121.
Gastric and Duodenal Ulcer. J. T. Moore, Algood.—p. 126.
Modern Surgical Operation. C. N. Cowden, Nashville.—p. 130.
Medical Society. J. A. McCullock, Nashville.—p. 134.
Vertigo. J. J. Shea, Memphis.—p. 138.
Tonometers and Tonometry. J. Green, St. Louis.—p. 141.
*Value of Determination of Basal Metabolism. W. H. Cheney and F. B. Bogart, Chattanooga.—p. 149.
Enlarged Prostate: Diagnosis and Management. W. D. Haggard, Nashville.—p. 153.

Operative Obstetric Complications.—The cases reported by Newell are: ruptured uterus, twisted ovarian pedicle, and dermoid cyst blocking the pelvic outlet.

Value of Knowing Metabolic Rate.—Cheny and Bogart noted forty-nine cases in which the basal metabolism was determined as a routine in general diagnostic studies. Eight of these cases were definitely diagnosed as hyperthyroidism and one as hypothyroidism.

West Virginia Medical Journal, Huntington

July, 1921, **16**, No. 1

Vital Factors in Control of Cancer. F. L. Hupp, Wheeling.—p. 11.
Primary Factors in Treatment of Mental Diseases. C. W. Sawyer, Marion, Ohio.—p. 21.
Goiter Enlargement of Thyroid. E. R. McIntosh, Elkins.—p. 30.

Wisconsin Medical Journal, Milwaukee

August, 1921, **20**, No. 3

Selection of Operation in Toxic Goiter. S. J. Seeger, Milwaukee.—p. 105.
Cancer Investigation and Experimental Cancer. W. E. Ground, Superior.—p. 107.
Premature Heart Contraction. F. M. Smith, Chicago.—p. 114.
Physiotherapeutic Treatment in War Injuries and Industrial Accidents. J. C. Elsom, Madison.—p. 116.
Epidemic Encephalitis. A. W. Rogers, Oconomowoc.—p. 122.
*Internal Secretions of Skin. K. W. Doege, Marshfield.—p. 125.

Internal Secretion of Skin.—From an anatomic and histologic point of view and bearing in mind the tremendous epithelial surface of the rete malpighii, its very intimate relation to the capillary circulation, its abundant nerve supply, as well as its extensive system of lymph spaces, it would seem to Doege that other, perhaps more important, functions than that of excretion and mechanical protection might pertain to this tissue. One might conceive that the living skin has the function, either of furnishing certain substances necessary for the basal metabolism, or to paralyze certain toxins by the product of these substances. Whether its extensive inner surface constitutes the laboratory where metabolic processes go on, changing or destroying the toxic agents, or whether it elaborates a secretion, necessary for proper metabolism, similar to the secretions of the thyroid, suprarenals, and gonads must for the present still be left undecided. The hypothetic assumption of the existence of an internal secretion of the skin is made probable, and the existence of a metabolic and biologic function is made positive, by the contemplation of certain facts. For instance, not only does a close or perhaps compensatory dependency exist between the functions of the various ductless glands themselves, such as thyroids and suprarenals, pituitary body and gonads, but there is evidence also of the existence of an intimate connection between these glands of internal secretion and the skin. Clinical facts make this evident. Perhaps, the most familiar examples are the appearance of myxedema with the loss of thyroid function; the dependency of certain skin eruptions or pigmentations on the sexual glands, pregnancy, puberty and the climacteric period; the appearance of the bluish discoloration of the skin in Addison's disease, an affection of the suprarenals. Again, the fact that many infectious diseases such as measles, diphtheria, smallpox, spotted fever, and syphilis run their course with a conspicuous and essential involvement of the skin is certainly not without a deeper significance, and points straight to the probable fact that the skin performs an important function in the overcoming of these affections. The established impression that measles and the scarlatina rash must "come out thoroughly" to prevent serious involvement of the inner organs, and that an abundant and well marked secondary and tertiary lesion of the skin in syphilis is a material safeguard against the later affections of the nervous system in this disease, would suggest and justify the assumption of a biologic protective function in the skin. The value of heliotherapy, sun baths, and Alpine light in the treatment of tuberculosis by stimulating the skin and its biologic function (or internal secretion, if you wish) thus becomes not only apparent, but also important, and demands of us as surgeons that we should utilize and exploit it.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

July, 1921, **2**, No. 44

*Lesions of Brachial Plexus Associated with Rudimentry Ribs. P. Sargent.—p. 95.
Structural Laws in Nervous System: Principles of Neurobiotaxis. C. U. A. Kappers, Amsterdam.—p. 125.
*Pathogenesis of Disseminated Sclerosis. J. L. Birley and L. S. Dudgeon.—p. 150.
*Experimental Study of Disseminated Sclerosis. W. E. Gye.—p. 213.
*Case of Myoclonic Encephalomyelitis of Malarial Origin. M. G. Marinesco.—p. 223.
Double Innervation of Striated Muscle. J. T. Wilson.—p. 234.

Rudimentary Ribs and Brachial Plexus Lesions.—Variations in the composition of the brachial plexus Sargent states are apt to be associated with costal abnormalities, prefixation with a seventh cervical rib and postfixation with an abnormal first thoracic rib. There is, however, no regular relationship between the costal and neural anomalies. The results of operative treatment in fifty cases are given, the majority having been traced for a period of from two to twelve years. Pain was cured in nineteen cases, and relieved in eight. Muscular wasting was cured in twelve cases, relieved in twelve, and unrelieved in seven. Vasomotor symptoms were cured in fourteen cases, relieved in six, and unrelieved in two.

Pathogenesis of Disseminated Sclerosis.—Two clinical types of disseminated sclerosis are recognized by Birley and Dudgeon: (*a*) the remittent type characterized by acute exacerbations at widely varying intervals alternating with quiescent periods, and (*b*) the chronic progressive type. In the series reported on (thirty-five patients) the proportion of remittent to chronic progressive cases is as six is to one. In early cases of the remittent type, once the acute disturbance has subsided, the patient may present no clinical evidence of organic disease over prolonged periods. The possibility of spontaneous cure cannot therefore be entirely denied. The remittent type in its later stages tends to assume the characteristics of the chronic progressive type. The great bulk of clinical and histologic evidence is opposed to the view that these two types correspond to two different pathologic processes. On the countrary, they are to be regarded as manifestations of one and the same disease, namely, disseminated sclerosis. Cultural and microscopic examination of the cerebrospinal fluid has in our hands thrown no light on the pathogenesis of the disease, and no specific organism has been isolated. The authors' attempts to transmit disseminated sclerosis from man to animals (rabbits) have been unsuccessful. They regard the transmissibility of the disease from man to animals as unproved. The clinical and histologic evidence is overwhelmingly in favor of the view that the morbid process underlying the disease is inflammatory in character.

Cause of Disseminated Sclerosis.—In Gye's opinion disheminated sclerosis is probably an infectious disease. The virus may sometimes be formed in cerebrospinal fluid.

Myoclonic Encephalomyelitis of Malarial Origin.—From the clinical aspect, the slight fever, and the indefinite lymphocytosis, Marinesco thought he was dealing with a case of epidemic encephalitis of myoclonic form; but examination of

the blood, followed by the study later of the alterations in the central nervous system, revealed the presence of hematozoa and even of crescents. The hematozoa localized their action principally to the nerve centers such as the brain, bulb and spinal cord, while the cerebellum was invaded to only a slight extent and the spinal ganglia still less.

Dublin Journal of Medical Science

August, 1921, **4**, No. 18

Rotunda Lying-In Hospital. Report for 1919-1920. G. Fitzgibbon, J. S. English and A. H. Davidson.—p. 337.

Indian Journal of Medical Research, Calcutta

October, 1920, **8**, No. 2

Chemical Investigation in Connection with Leprosy Inquiry. S. Ghosh. —p. 211.
Vaccine Institute, Belgaum. R. W. Fisher.—p. 216.
Arthropods of Medical and Veterinary Importance in Mesopotamia, and Their Relation to Disease. IV. Nematocera. W. A. Patton.—p. 245.
Id. V. Some Miscellaneous Arthropods. W. S. Patton.—p. 253.
Vaccine Lymph Production, Preparation and Preservation. W. F. Harvey.—p. 257.
Bacteriologic and Laboratory Technic. W. F. Harvey.—p. 270.
Survey of Culicide of Rubber Estate. R. A. Senior-White.—p. 304.
*Pathology and Bacteriology of Influenza. E. D. W. Greig.—p. 326.
Chemical Composition of Nim or Margosa Oil. K. K. Chatterji and R. N. Sen.—p. 356.
*Weight at Birth of Infants in India. D. F. Curjel.—p. 363.
*Reproductive Life of Indian Women. D. F. Curjel.—p. 366.
Correlation Between Chemical Composition of Anthelmintics and Their Therapeutic Values in Connection with Hookworm Inquiry in Madras Presidency. VII. Oleum Eucalypti. J. F. Caius and K. S. Mhaskar. —p. 372.
Id. VIII. Chloroform. J. F. Caius and K. S. Mhaskar.—p. 379.
Id. IX. Eucalyptus-Chloroform Mixture.—p. 384.
Prevalence of Ancylostomiasis in Madras Presidency. K. S. Mhaskar. —p. 395.
Hookworm Infection and Sanitation. K. S. Mhaskar.—p. 398.

Bacteriology of Influenza.—Necropsies were made by Greig in sixty cases of fatal influenza. As a result of a study of the pathologic and bacteriologic evidence obtained, it became evident that this was not a hemolytic streptococcal infection, but one associated with *B. influenzae* and pneumococcus. The pathologic lesions were those associated with influenza and in the respiratory system it took the form of an acute bronchiolitis without serious involvement of the pleura, such as empyema, also other serous membranes, e. g., pericardium and peritoneum, were not attacked, the organisms associated with the lesions were *B. influenzae* and the pneumococcus, the hemolytic streptococcus did not play a part in the causation of the disease.

Weight at Birth of Infants in India.—Records of the weights at birth of 1,849 normal Indian infants, representing many different castes and classes, show that the Indian infant has reached at the time of borth the average weight of 6.5 pounds. This average compares favorably with the weights at birth of infants of other parentage born in India. The earlier marriage age of the Indian mother (as compared with European races), does not adversely affect the development and general nutrition, as shown by the weight, of her child at birth. The subsequent high mortality among such children is largely due to unfavorable postnatal conditions.

Reproductive Life of Women in India.—Among 489 Indian women representing many different castes and races, the average age of the onset of puberty (catamenia) was 13.63 years. The average age at marriage among the same women was 13.83 years. The average duration of menstrual (reproductive) life among Indian women, 32.14 years, does not appear to differ materially from the limits for European races. The earlier age at marriage among Indian women does not appear to influence the duration of their reproductive or menstrual life as compared with European races.

Lancet, London

Sept. 3, 1921, **2**, No. 10

Importance of Industrial Medicine to Community. E. L. Colls.—p. 487.
*After-Effects of Epidemic Encephalitis in Children. D. Paterson and J. C. Spence.—p. 491.
*Effect of Culture Medium on Agglutination of Meningococci. I. W. Hall and G. E. Tilsley.—p. 494.
*Protista and Disease. J. J. Clarke.—p. 495.
*Value of Complement Fixation Test in Pulmonary Tuberculosis. A. L. Punch.—p. 497.
Two Probable Cases of Ambulatory Encephalitis Lethargica. C. E. Williams,—p. 499.
Foreign Body in Knee-Joint for 13 Years. A. C. Sharp.—p. 499.

After Effects of Epidemic Encephalitis in Children.—The after effects in twenty-five cases of epidemic encephalitis occurring in children between the ages of 3 months and 11 years, in which the diagnosis of epidemic encephalitis appeared to be straightforward and incontrovertible are analyzed by Paterson and Spence. Only one case was fatal. In six of the remaining twenty-four cases a complete recovery has resulted. The remaining eighteen children all show definite affections directly attributable to the original attack of encephalitis. Seven are grossly mentally deficient and eleven show minor degrees of mental deficiency. The seven grossly mentally deficient cases appear to be in a state of permanent and hopeless idiocy. Two of these cases are, moreover, in a condition of spastic diplegia with "scissor legs" and contractures. In the second group of eleven cases the mental changes are greater than could be accounted for by the long period of ill health. The worst cases, though able to recognize their parents and other familiar objects, are yet too dull to learn a simple lesson. Others of this group are classified as being slightly mentally deficient. The results of encephalitis are much more serious in the infants and young children than in the older children. Of those affected before the age of 12 months only one has made a complete recovery, while four have become quite mentally deficient. The severity of the initial attack of encephalitis appears to be in direct proportion to the after-results which follow it. Some degree of mental deficiency may be expected to result from the illness if the stupor and lethargy persist for three or four weeks in a young child. On the other hand, a short illness, with stupor for a few days only, will probably result in complete recovery. The physical changes following encephalitis in childhood include spastic diplegia, hemiplegia, symptomatic paralysis agitans, muscular rigidity, and tremors.

Culture Medium and Agglutination of Meningococcus.—Hall and Tilsley state that individual strains of meningococci when grown on nut nasgar medium become more agglutinable than when they are grown on legumen agar, with or without the addition of blood. The observation may be a possible explanation of some of the "inagglutinable" strains of various bacteria. The agglutinogenic substance in meningococci shows also a relation to the content of nutrient mediums. It is more active in coccal emulsions prepared from nut nasgar medium than those obtained from legumen medium. This may have a bearing on the production of antiserums. Emulsions of meningococci in physiologic solution of sodium chlorid made with freshly distilled water heated to 65 C. for twenty minutes, standardized numerically, and then preserved with 0.5 per cent. phenol, have remained unchanged as to numbers, and sterile for five years. At the end of this period, the agglutinability and agglutinogenic capacity persist practically unaltered.

Protista and Disease.—Clarke discusses certain bodies found by him in cancer, sarcoma, a secondary syphilitic lesion, in the vaccinated cornea, and in some other pathologic conditions. He thought at one time that they were of the same nature as Cobbold's psorosperms. Now he is of the opinion that the bodies referred to are of the same class of organisms as the Synchytrian of a thistle. There are some points of difference, and the parasites which, with others, he has described in human and some animal diseases constitute a group as yet unplaced in biology. They require a name; and having in view their being a branch of the Chytridiales, hence belonging to the vegetable protists with an affinity to the Mycetozoa; and in view of their being the plasson state at the initial stage of their intracellular life Clarke suggests the name Plassomyxineae.

Value of Complement Fixation Test in Tuberculosis.—Punch presents an analysis of a second series of cases, and offers further proof of the accuracy of the test. One hundred and eighty-five bloods have been tested in seventy-one gave a positive result. Punch is convinced that the complement-fixation test is a reliable means for the diagnosis of an active or recently active pulmonary tuberculous lesion. It must be emphasized that it is the pulmonary form only of the disease that is dealt with in this paper. A negative result is as reliable an indication of the absence of such a lesion as a positive is of its presence.

Medical Journal of Australia, Sydney

July 9, 1921, **2**, No. 2

High Frequency Current in Complicated Urethritis. J. C. Booth.—p. 19.
Hookworm in Pigs. P. A. Maplestone.—p. 20.
Medical Ethics. II. A. V. M. Anderson.—p. 20.
Pubiotomy. J. W. Dunbar Hooper.—p. 27.
*Prenatal Crying. M. W. Sprod.—p. 27.

Prenatal Crying.—Sprod records the case of a quadripara, who was in heavy labor. On examination, the cervix was fully dilated, but the head had not engaged the brim. The membranes were ruptured and a large amount of amniotic fluid gushed out. During this maneuver the patient was fully under chloroform preparatory to forceps extraction. A few moments later, three distinct cries were heard, slightly muffled, as if under a blanket. Further examination showed that it was not an unexpected quick delivery. Sprod immediately applied high forceps and delivered a blue baby with the cord around the neck. The child began breathing after a little prompting.

July 16, 1921, **2**, No. 3

*Pathogenicity of Demodex (Owen) in Human Being. H. Lawrence.—p. 39.
Medical Ethics. III. A. V. M. Anderson.—p. 40.

Pathogenesis of Demodex.—The presence of the *Demodex* in skin affections has been studied by Lawrence for some years and he doubts very much the innocence of this parasite in other conditions apart from the typical impetiginous condition described by Whitfield and himself. There are many skin affections in which the *Demodex* appears in such numbers that its possible causative effect in the production of the disease cannot be overlooked. In applying parasiticide remedies the disappearance of the parasites and cure of the disease occur simultaneously.

July 23, 1921, **2**, No. 4

Lectures on Medical Ethics. IV. National Medical Service. A. V. M. Anderson.—p. 58.
*Voluntary Arrest of Pulse and Apparently of Heart. S. Gillies and H. R. Sear.—p. 63.
Case of Hyperpituitarism. A. E. Mills.—p. 64.

Voluntary Arrest of Pulse and Heart.—Gillies and Sear cite the case of a woman who, through some abnormality of the fibers of the diaphragm surrounding the inferior vena cava and of the fascia in the upper thoracic region, is able by straining to cut off almost completely the venous blood supply to her heart, with the result that it quickly empties and then goes on contracting with empty chambers until she is unable to continue straining, when it refills.

Practitioner, London

September, 1921, **107**, No. 3

Nevi in Children and Their Treatment. D. C. L. Fitzwilliams.—p. 153.
*Examination of Blood in Diabetes Mellitus. R. T. Williamson.—p. 169.
Gynecologic Causes of Acute Abdomen. A. W. Bourne.—p. 174.
Prognosis in High Blood Pressure. A. Graham-Stewart.—p. 183.
Some Uses and Doses of Hypnotics. F. Wyatt-Smith.—p. 201.
Idiopathic Purpura. E. J. Bradley.—p. 214.
*Traumatic Rupture of Diaphragm, Patient Lives Over Two Years. H. Dodgson.—p. 219.
Case of Hematuria. J. Hirschmann.—p. 221.

Blood Test in Diabetes Mellitus.—Williamson describes a test for blood sugar. Twenty c.mm. blood are mixed with 1 c.c. of a 1:6,000 aqueous solution of methylene blue and 40 c.mm. liquor potassae. The mixture has a deep, definite blue or bluish green color. The tube containing the mixture is placed in a water bath, and the water kept boiling for four minutes. If the blood sugar is decidedly increased, the blue color of the mixture will change to brownish yellow (almost the color of normal urine). When the blood sugar is not increased the mixture tube retains its blue or bluish green color.

Traumatic Rupture of Diaphragm.—In Dodgson's case, half the stomach, a considerable portion of the transverse and descending colon, as well as several coils of small intestine were occupying the left pleural cavity and lying anterior to the left lung. He found a large circular aperture, about 4 inches in diameter, in the center of the left half of the diaphragm. The left lung, which was lying posterior to coils of colon and small intestine, was very small, shrunken, and collapsed, and showed well marked anthracosis. No other gross lesions were found. A death certificate given by a colleague stated that death was due to pneumonia.

Archives Médicales Belges, Liége

June, 1921, **74**, No. 6

*Chronic Intestinal Stasis. L. Fouarge and H. Houdmont.—p. 481.
*Puncture of Elbow Joint. R. Reynders.—p. 520.
*Diagnosis of Syphilis. Godeau.—p. 527.

Chronic Intestinal Stasis.—Fouarge and Houdmont explain why chronic intestinal stasis comes to be so often diagnosed and treated as appendicitis, migraine, ovaritis, arthritism, glandular insufficiency, etc., and they review the medical treatment for stasis at different points, and the surgical measures necessary when this fails. They do not endorse Lane's total colectomy, urging the importance of saving the ileocecal valve, and hence advocating subtotal colectomy.

Puncture of the Elbow.—Reynders recalls that even 5 c.c. of fluid in the elbow after a contusion or other trauma does as much harm as 20 or 30 c.c. in the knee. Even a simple sprain of the elbow may be accompanied by an effusion, and an effusion or hematoma may deceptively complicate a fracture. A cystic, fluctuating zone can be felt at the outer border of the olecranon, above the edge of the head of the radius, and this is the point to puncture. There are no important vessels here; the cavity of the joint is largest at this point, and the capsule is separated from the skin only by the aponeurosis of the triceps.

Diagnosis of Syphilis.—Godeau remarks that every physician should realize that syphilis is the most prevalent of all chronic diseases.

Archives de Médecine des Enfants, Paris

August, 1921, **24**, No. 8

*Acute Encephalitis in Children. J. Comby.—p. 457 and p. 488.
*Relapses of Scarlet Fever. V. Hutinel and M. L. Nadal.—p. 471.
*Hirschsprung's Disease in Child. G. L. Hallez and G. Blechmann.—p. 484.

Acute Encephalitis in Children.—Influenza had preceded the acute encephalitis in 16 of Comby's 62 cases in children from 1½ months to 15 years of age; whooping cough in 7; enteritis in 10; vaccination, measles, inherited syphilis, or a fall on the head in 2 each, and in 17 nothing to explain the encephalitis could be discovered. A predisposition on the part of the nervous system was occasionally noted. Isolation seems to be superfluous, he says, and until we can recognize and treat the carriers, there can scarcely be any question of prophylaxis. The onset was almost always brutal and violent; convulsions, spasms and unconsciousness for twelve to twenty-four hours are common. There was an apoplectic shock in 12 per cent., but very often the symptoms were credited to the preceding infectious disease. The spinal puncture fluid was found clear in 11 of the 18 cases examined. He reviews the wide range of symptoms that may be presented. The disease may prove fatal in a few days, or complete recovery may follow in a few days or weeks. Recovery without sequelae occurred in 21, about a third of his cases. In 8 other cases there were mild sequelae, agitation and irregular movements, but the other 33 were left with spastic paralysis, epilepsy, multiple sclerosis or idiocy. One girl of 3 developed dementia praecox fifteen years later. His mortality was 9.6 per cent. but encephalitis may have been overlooked in certain fatal cases of other diseases. Sequelae were left in 66 per cent. but the spastic and paralytic often proved curable under physical training and reeducation. The epilepsy, hydrocephalus, blindness in 2 and deafness in 2 proved permanent, but aphasia and mutism subsided in time. The prognosis is infinitely less grave on the whole than that of bacillary meningitis. He denounces the fixation abscess in treatment as barbarous and exposing to accidents. Among the 6 children that died, 3 had been treated with a fixation abscess while 56 recovered without it. Let adults have their fixation abscess if they wish, he says, but do not enforce it on protesting children. Besides the usual symptomatic measures, he mentions revulsion to back of neck and hexamethylenamin. After the acute phase, for the motor or psychic sequelae, due mostly to sclerosis of the brain, iodid, bromids, active and passive movements may improve and even cure spastic paralysis deemed incurable at first. Special training is necessary for children left abnormal by the encephalitis. He does not attempt to distinguish between sporadic and the epidemic encephalitis; both begin the same and run the same course. Lethargy is not pathognomonic and is not constant.

Relapse and Recurrence of Scarlet Fever.—Hutinel and Nadal have noticed that in the cases of recurring scarlet fever or a relapse during convalescence, the subject had been under the influence of some other coincident infection at the time. This had evidently modified the natural immunization process. In seven cases described in detail the children developed the disease anew after an interval of from thirteen to thirty-nine days. The first attack had been mild in one but the second proved fatal. In the others the second attack was milder. All those children and three others mentioned had some surgical suppuration, acute articular rheumatism, pleurisy or pneumonia at the onset of the scarlet fever. Analysis of the literature on recurring scarlet fever shows a frequent coincidence of two infections, and experimental research testifies to the derangement of the immunization process by a coincident infection. The practical conclusion seems to be that under such conditions the convalescents from scarlet fever should be kept under supervision longer, but they do not advise prolonging the isolation. The instances of recurrence are too rare to justify this.

Hirschsprung's Disease.—The child in question had been normal and robust until over 3 when he developed typical Hirschsprung's disease, with enormous dilatation of the colon. Under treatment with a purge every morning fasting (sodium sulphate 0.5 gm.; sodium phosphate, 0.2 gm.; sodium bicarbonate, 0.3 gm.), moist heat to the abdomen, and oil enemas, the girth dropped in two weeks from 62 to 48 cm. The remarkable progressive improvement has continued since, but the prognosis is still reserved.

Bulletin Médical, Paris

Aug. 6, 1921, **35**, No. 32

*Respiratory Exercises. R. d'Heucqueville.—p. 639.

Training in More Effectual Breathing.—The subject usually has to learn to breathe properly first, before he can be given breathing exercises to increase his chest measure and vital capacity. D'Heucqueville uses a valve and drum apparatus to record the pressure, etc., as he describes, to insure greater precision than is possible with the water-bottle spiroscope. The latter may even do harm, as it is impossible to gage the effort to the individual capacity. He knows of one instance in which a healthy young man had serious symptoms from his heart after excessive work on the spiroscope.

Aug. 13, 1921, **35**, No. 33

*Recent Progress in Medicine. G. Lyon.—p. 653.

Recent Progress.—Lyon concludes this survey of recent publications on vaccines, organ extracts, physical agents and drugs, by reviewing the various treatments in vogue for epidemic encephalitis. Pic has found useful an early fixation abscess plus hexamethylenamin by the mouth or vein. He gives epinephrin with insufficiency of the heart or of the centers in the medulla, and in case of meningeal reaction applies ice to the head and gives hot baths at six hour intervals.

Gynécologie et Obstétrique, Paris

August, 1921, **4**, No. 2

*Multiple Vaginal Cysts. L. Bérard and C. Dunet.—p. 89.
*Syphilis and Hypertrophy of the Placenta. E. Lévy-Solal.—p. 94.
*Ovarian Lutein Cysts and Mole. J. Cottalorda.—p. 119.
*Metritis of Uterine Cervix. E. Douay.—p. 135.

Multiple Cysts in the Vagina.—The photomicrographs confirm the wolffian origin in the case described.

Hypertrophy of the Placenta.—Lévy-Solal asserts that in inherited syphilis the placenta is liable to be exceptionally large in proportion to the size of the fetus. This disproportion was evident in 176 of the 1,579 deliveries at the Baudelocque Maternity, and syphilis was certain or probable in all but 15 per cent. of the 176. There was also marked disproportion in 57 of 97 women known to have been long syphilitic. Specific treatment during gestation wards off this disproportion, but otherwise it seems to occur in at least 55 per cent. of all cases with a history of syphilis.

Indications for Treatment of Hydatidiform Mole.—Cottalorda has compiled 54 cases since 1913 in which a hydatidiform mole became transformed into a chorio-epithelioma, and 9 in which there were also lutein cell cysts in the ovaries. In 76 cases on record, a mole was known to have preceded the chorio-epithelioma in 50 per cent. Analysis of these and other data sustains the connection between the mole and bilateral lutein cysts in the ovaries. The latter have been found in 39 per cent. of all the mole cases examined, and in 9.4 per cent. of the chorio-epithelioma cases, and malignant chorio-epithelioma develops from a mole in about 9 per cent. of the cases. In short, he concludes, the discovery of lutein cysts in both ovaries should be regarded as a sign of impending transformation of the mole into a malignant chorio-epithelioma, and hence total hysterectomy with ovariotomy is imperative during the month after expulsion of a mole unless the ovarian cysts show pronounced retrogression. This has been observed in some cases. If the ovaries are free from these cysts, treatment can be restricted to curetting the uterus after expulsion of the mole, keeping the patient under surveillance, ready to remove the uterus at once if there is hemorrhage or if cysts develop in the ovaries.

Metritis of Uterine Cervix.—Douay compares the different methods for treatment of endocervicitis. In the acute and subacute cases it improves under ordinary medical measures but is difficult to cure when chronic. In the early stages, desquamation can be induced by dressing the vagina with an 8 per thousand picric acid solution. The bacteria are expelled mechanically by the desquamation. This procedure is kept up for twenty hours once or twice a week. In the next stage, the aim is to activate glandular secretion by repeated and prolonged hot injections, diathermy, glycerin ovules, a wick dipped in glycerin or vacuum suction applied to the cervix. A wick dipped in a silver nitrate or iodin or zinc chlorid solution can be inserted in the cervix, or one of these fluids instilled. When there is hypertrophy of the mucosa and hyperplasia of glands, the mucosa has to be destroyed, but in such a way as not to set up inflammation in the adnexa. The actual cautery or chemical cauterization or various surgical measures may be selected for this.

Journal de Radiologie et d'Electrologie, Paris

July, 1921, **5**, No. 7

*Electric Excitability of Nerves and Muscles. A. Strohl.—p. 289.
Intensity of Diffuse Radiations in Radiography. R. B. Wilsey.—p. 297.
Ionometric Dosage of Roentgen Rays. I. Solomon.—p. 305.
*The Records in Radium Therapy. A. Laborde.—p. 312.

The Egersimeter.—Strohl's electric instrument is designed to test the electric excitability of nerves and muscles in man.

Notation in Radium Treatment.—Laborde summarizes here the discussion and conclusions in regard to the terms, values and estimation of doses in radium therapy as determined at the meeting of the French Cancer Research Society a year ago. Three different systems were advocated.

Paris Médical, Paris

Aug. 20, 1921, **11**, No. 34

Chronic Toxemia from Appendicitis. P. Descomps.—p. 145.
*Etiology of Dysentery. W. Janowski.—p. 152.

Etiology of Dysentery.—Janowski's experience at Warsaw has almost convinced him that the large number of "dysentery bacilli" species are in fact merely different varieties of the colon bacillus. Nearly thirty have been described to date, and he recalls that in 1892 he published the necropsy findings in seventeen cases of fulminating dysentery, fatal in a few hours, for which the colon bacillus was unmistakably responsible. He presents a long array of established data to sustain his views and open the way for more effectual serotherapy.

Presse Médicale, Paris

July 20, 1921, **29**, No. 58

*Fracture of the Lower Radius. P. Mocquot.—p. 573.
*Gastric Spasm. F. Ramond, C. Jacquelin and Borrien.—p. 574.

Motor Disturbance in Wrist After Fracture of Radius.—Mocquot describes, with five illustrations, how to ward off the otherwise almost inevitable inability for supination as the fractured radius heals.

Spasm of the Stomach.—Ramond and his co-workers state that they have discovered a tendency to a kink in the lower esophagus in certain cadavers, the obstruction being mechanical rather than a spasm in such cases. The liver may cause obstruction by pressing the esophagus against the spine. The symptoms are generally only those from the inability of the air to escape. With spasm of the pylorus, usually a small portion of the contrast meal passes through at first and stays

immovable just beyond. The shadow of the pyloric segment flares upward, with a horizontal top. This is called Brügel's sign of ulcer, but it indicates spasm at the pylorus whether there is an ulcer or not. Atropin and epinephrin are useful in revealing spasm, but the findings are not always positive. They remark in conclusion that whatever the cause of the spasm, measures to reduce it will benefit, especially food making the least possible demands on the motor function, refraining from boiled and rare meats, fats, alcohol, coffee and tobacco, overexertion and worry. An exploratory laparotomy may reveal a simple spasm with hypertrophy like that in infants, and easily corrected by the surgeon.

Aug. 17, 1921, **29**, No. 66

*The Stump After Resection of Intestine. T. de Martel.—p. 653.
*The Heart During Physical Exercise. Boigey.—p. 654.
*Gastrectomy for Cancer. R. Olivier.—p. 656.

Care of Stump After Resection of Intestine.—De Martel protests against the heedless way in which often the tied septic tip of the stump is turned in, and the suture above it leaves a closed septic cavity for proliferation of bacteria. His illustrations show how this can be avoided. He seizes the edges beyond the clamp with a row of four forceps and quilts a suture thread below the clamp, one on each side, the threads sparing the mucosa. The long ends on each side are tied long together and kept taut and spread by the forefinger of the operator and of his assistant. The four forceps held in the other hand are then pushed down, which invaginates the tip, and the threads are drawn tight and tied, the forceps being withdrawn at the last moment. The edges of the invaginated portion thus hang loose, not forming a closed cavity in which infection can simmer till it breaks through. This occurred in 10 per cent. of his resection cases until he adopted this technic.

The Heart During Physical Exercise.—Boigey is the physician in charge of the Ecole d'éducation physique at Joinville. His numerous tests have demonstrated that a phase of relaxation and passive distention follows when the first phase of hypertonicity—which accompanies every physical effort—is past. The exercise should never be allowed to progress as far as this second phase.

Gastrectomy for Cancer.—This is an earnest plea for gastrectomy. Olivier states that there has been no mortality in his last 18 cancer cases and in 18 ulcer cases since local anesthesia has been the rule. The anastomosis is made with a very short loop, directed toward the left, and the anastomosis is fastened firmly to the mesocolon, several stitches fastening the stomach itself, as well as the loop, to the transverse mesocolon. In a total of 66 gastrectomies for cancer since 1895, 41 of the 56 surviving patients died from a few months to twenty years afterward, many from intercurrent disease, and 27 per cent. survived for over three years. Of the 13 known to be still living, the interval has been over six years in 5 and three years in 3. The absolute freedom from symptoms of so many after the gastrectomy and for such long intervals, confirms the superiority of gastrectomy, he reiterates. The earlier diagnosis now possible and regional anesthesia are transforming the indications for operative treatment of gastric cancer.

Aug. 20, 1921, **29**, No. 67

*Chronic Dilatation of the Esophagus. J. Guisez.—p. 661.
*Exophthalmic Goiter and the Suprarenals. H. Swiecicki.—p. 664.
*Serotherapy of Mumps. L. Cheinisse.—p. 666.

Dilatation of the Esophagus.—Guisez ascribes to defectively masticated food, alcohol, irritating condiments or other irritating substances arriving at the cardia, the irritation of the latter which induces spasmodic closure. Inflammatory stenosis follows the spasm, and if it frequently recurs or becomes chronic, the dilatation of the esophagus may require vigorous measures as the stagnation and irritation in the esophagus invite cancer. He has encountered twenty-six cases of cancer from this sequence. The esophagus and cardia can be stretched sideways without discomfort, so three bougies side by side can be borne better than one large one. His illustrations show the technic for this *dilatation multi-bougiraire*. The bougies can be left in place for ten or fifteen minutes. A narrow one is introduced first, and this serves as a guide for a larger one. With endoscopy and by the natural routes even the most difficult cases can be conquered at last, if the dilatation is persevered in long enough. One illustration shows the danger of working without direct visual inspection; the lower end of the esophagus sagged down all around below the level of the cardia opening. Any attempt to push the bougie farther when the tip was in this side pocket would have been disastrous.

Exophthalmic Goiter and the Suprarenals.—Swiecicki cites extensive data which he thinks transfer the primary cause of exophthalmic goiter from the thyroid to the suprarenals, as he explains.

Diphtheria Antitoxin in Treatment of Mumps.—Cheinisse remarks that the favorable results reported by certain Italian and French clinicians from treatment of mumps with diphtheria antitoxin sustain the view that serotherapy does not have to be specific. Certain recent experiences suggest that normal serum may prove effectual.

Aug. 24, 1921, **29**, No. 68

*Attenuated Forms of Nephritic Retinitis. F. Terrien.—p. 673.
*Rupture of Large Intestine from Compressed Air. G. Jean.—p. 675.

Uremic Retinitis.—Terrien passes in review the various signs and symptoms which reveal in the retina the possibly otherwise unsuspected retention of nitrogenous waste. Treatment should be addressed to the kidneys, a salt-free milk or vegetable diet, with purges and with possibly lumbar puncture if there is headache. The eyes should be rested and slightly tinted glasses worn. He recommends hot applications to the eyes and pilocarpin instillation if the tension seems high. Atropin is liable to induce hypertonia, especially in the elderly, and should be used only exceptionally.

Rupture of Large Intestine from Compressed Air.—Jean reports two cases of this kind with recovery of both patients after resection of the severely damaged and ruptured bowel and the making of a definitive median abdominal anus. The injury was from the bursting of a pipe conveying condensed air or a jet from the nozzle. In both cases the pipe had been 10 or 20 cm. from the skin.

Aug. 27, 1921, **29**, No. 69

*Resection of Knee. G. Pascalis.—p. 681.
*Prescurvy State. H. Godlewski.—p. 682.
Origin of Pneumonia and Experimental Pneumonia. P. L. Marie.—p. 683.

Resection of the Knee.—Pascalis has had occasion to reexamine a large number of persons after resection of the knee, and he discusses the factors that favored or militated against the successful ultimate outcome. Among the minor points he emphasizes is the advantage of potassium silicate rather than plaster for the second apparatus. Also the necessity for training to walk without sparing the resected knee too much. Every articulation of the foot should be intentionally brought into play. He also advises not to correct the shortening of the leg too soon. The dipping down of the pelvis on that side tends to minimize or compensate the deformity. He urges the patient to rise on his toes at each step of each foot.

Prescurvy.—Godlewski insists that living foods should form an important part of the daily diet more than is considered necessary now as a rule. He thinks that many persons, young and old, are in a state of prescurvy from partial lack of the accessory food factors. Milk, fresh fruit juices, honey and meat juice should form part of the meals.

Aug. 31, 1921, **29**, No. 70

Prevention of Cancer. Lapthorn Smith.—p. 693.
*Pathogenesis of General Paresis. L. Marchand.—p. 695.

General Paresis.—Marchand explains that there is much to sustain the assumption that while general paresis develops mainly in the syphilitic, it is due to some other infectious agent than *Spirochaeta pallida*.

Schweizerische medizinische Wochenschrift, Basel

Aug. 11, 1921, **51**, No. 32

*Spontaneous Colon Bacillus Prostatitis. F. Suter.—p. 733.
Spirochetes in Erythema Nodosum. R. Massini.—p. 739.
*Localization of Elastic Properties in Lungs. F. Rohrer.—p. 740.
*Localization of Currents of Air in Lungs. F. Rohrer.—p. 741.
Natural Immunity to Tuberculosis. A. Wolff-Eisner.—p. 742.
"Barbed-Wire" Moods in Sanatoriums. J. Kollarits.—p. 744.
Tradition and Observation in Medieval Medicine. Sigerist.—p. 745.

Colon Bacillus Prostatitis.—Suter has witnessed symptoms ranging from mild local to severe febrile general symptoms with spontaneous colon bacillus prostatitis, as he shows by 8 case histories; in 19 further cases the bladder also was involved, and in 5 of these, the kidneys. In only 6 of his 53 cases of spontaneous prostatitis was there a history of some preceding infectious disease. In the 27 spontaneous colon bacillus cases the bladder was never primarily affected; either the kidneys or the prostate were the primary site of the process, and predominantly the prostate.

Topographic Distribution of the Elasticity and of the Air Currents in the Lungs.—Rohrer estimates the elastic property by determining the difference in pressure of the air and the size of the corresponding portion of the lung. He determines the currents mostly by comparison with a model of the lungs, and roentgenoscopy. One practical result of his research is the discovery of extreme overdistention of certain areas during hard coughing. The damage to lung tissue is far greater than generally recognized. In the peripheral regions, the parenchyma is liable to be stretched beyond recuperation, while in the central portions, which are emptied more readily, they are liable to suffer from compression from the distended portions. The conditions in the currents of air during hard coughing throw light on the origin of a number of pathologic conditions in the lungs.

Policlinico, Rome

Aug. 22, 1921, **28,** No. 34

*Amusia and Acalculia. G. Mingazzini.—p. 1131.
*Pneumothorax Treatment of Pleurisy. E. Comino.—p. 1135.
*Medical Inspection of Schools. P. Costa.—p. 1137.

Amusia and Inability to Do Calculations.—Mingazzini discusses the form of aphasia that involves music or mathematics, citing extensively from Henschen's work on amusia and acalculia recently published at Stockholm as the fifth part of his clinical and anatomic study of the pathology of the brain. Henschen seeks to locate the center for music, but thinks there is probably no circumscribed area for calculating; this is a more complex function of the brain, based on vision, etc.

Artificial Pneumothorax in Treatment of Pleurisy with Effusion.—Comino emphasizes that the artificial pneumothorax prevents derangement from the upsetting of the balance after withdrawal of the effusion, while it prevents its forming anew, and the formation of cicatricial bands. The amount of gas injected should always be less than the amount of fluid withdrawn. He was warned of the necessity for this caution by two cases in which dyspnea and symptoms from the heart, a chill and fever, followed injection of the nitrogen in an amount to equal that of the fluid siphoned out. The pressure from the gas is exerted in a different direction from that of the preceding effusion, and, as the nitrogen warms up, it expands, both of these factors being liable to induce disturbances unless guarded against. But otherwise he regards therapeutic pneumothorax as a constantly effectual measure in treatment of pleurisy with effusion which, left untreated, may invite tuberculosis.

Medical School Inspection.—Costa reiterates the importance of careful examination of throat, nose and ears, noting what the parents and teacher have to say on the subject.

Aug. 29, 1921, **28,** No. 35

*Epidemic Hiccup. T. Pontano and E. Trenti.—p. 1163.

Epidemic Hiccup.—Pontano and Trenti inoculated twelve volunteers with blood, throat rinsings and spinal fluid from four patients with febrile epidemic hiccup, but with constantly negative results. They found nothing to suggest any connection with influenza or epidemic encephalitis.

Aug. 15, 1921, **28,** Surgical Section No. 8

*The So-Called Essential Hematuria. G. D'Agata.—p. 325.
*Mesentery Plastic Operations. L. Torraca.—p. 332.
*Unilateral Hematuria. D. Pizzetti.—p. 347.
*Absorption of a Hematoma. A. Albanese.—p. 359.

So-Called Essential Hematuria.—No cause for the recurring hematuria could be discovered in D'Agata's patient, but the losses of blood compelled the removal of the bleeding kidney. This revealed patches of glomerular nephritis and proliferating pyelitis, enough to explain the hemorrhages, although not enough to induce appreciable symptoms otherwise.

Plastic Operations with Mesentery.—Toracca gives the details of experimental research on 18 dogs. A loop of intestine was separated from its mesentery and in 7 of them it was wrapped around with omentum afterward. Gangrene developed constantly when a segment of the bowel 8 or 9 cm. long had been detached from its mesentery, but when the segment had been wrapped in omentum, the dogs bore it even with a segment 12 or 16 cm. in length. Even at the best, however, the plastic operation induced changes that impeded circulation and modified the innervation, affecting the motor function of the bowel more or less. Only 3 survived of these 7 dogs; the others succumbed to stenosis or gangrene.

Hemorrhagic Pyelonephritis.—Pizzetti cites Taddei's recent experience with six cases of supposed essential hematuria or nephralgia in which not only the kidney but also the pelvis and ureter showed patches of chronic inflammation. Pizzetti then reports two similar cases in men. In one the bleeding kidney had been decapsulated and slit without relief, and was finally removed. Two ureters and a double pelvis were found at the nephrectomy, with a calculus in one. In both cases the interstitial glomerular nephritis with cystic and pseudoglandular pyelitis corresponded to Taddei's cases, but no cause could be discovered in either except the irritation from the one calculus. A scrap removed for biopsy in this case had come from a normal area. The circulation impaired by the decapsulation, four months before, had not recuperated. Although the capsule had healed over, there was no new formation of vessels.

Reabsorption of Extravasated Blood.—Albanese ascertained that there were no protective ferments to be found by Abderhalden's method in rabbits and guinea-pigs for their own extravasated blood. This rendered it possible to trace the absorption of experimental hematomas in them by the proteolysis of the extravasated blood, and demonstrated that these defensive ferments are influential in its absorption.

Riforma Medica, Naples

July 30, 1921, **37,** No. 31

*Clinical Medicine in 1920. E. Maragliano.—p. 721.
Vaccine Therapy of Tuberculous Peritonitis. G. Saraceni.—p. 732.
Staining of Sporotrichum in Granulomas. G. Pacinotti.—p. 733.
The Heart Manifestations of Excessive Vagus or Sympathetic Tonus. A. Azzi.—p. 735.

Progress in Internal Medicine.—Maragliano reviews the work of the year in his service and connected institutes where special attention is devoted to the study of immunity: Sivori's research has confirmed that the quantitative and qualitative changes in the leukocytes, and the complement values reflect the defense which the organism is opposing to the infection at the moment. Also that the gravity is due to the rapidity with which the pathogenic elements get into the circulation, as well as to their virulence. When the generic and the specific defensive forces are being overwhelmed by the infection, then a nonspecific stimulation of the generic forces, by parenteral protein injections, may whip up the generic forces to an effort that will insure victory. This may occur even when the specific treatment is unable to stimulate the specific defensive forces to efficient resistance. Muggia found no evidence of demineralization in nineteen tuberculous patients unless they had fever and were losing weight. The Petroff culture medium proved exceptionally favorable for the rapid differentiation of tubercle bacilli. Durand has had encouraging results in pulmonary tuberculosis with an autogenous vaccine made from sputum and germs obtained by puncture of the lung. This proved particularly effectual in the cases of grave secondary infection in which we are powerless. Maragliano says of his method of preventive vaccination against tuberculosis that time alone can establish the value of the suggestive results obtained during the seventeen years to date. Bertolini has demonstrated azotemia in many morbid conditions not connected with kidney disease. It may thus be due to increased production instead of retention of nitrogen. This has been found mostly with liver disease and pneumonia. The enormous importance of the liver as a factor in acidosis has also been sustained.

Tumori, Rome

Aug. 10, 1921, **8**, No. 2

*The So-Called Botryomycosis in Man. G. Romano.—p. 129.
*Renal Lipoma. V. Cantoni.—p. 152.
*Caustic Treatment of Superficial Cancer. Citelli and Caliceti.—p. 165.
Benign Epithelial Tumor. L. Cevario.—p. 171.
*Cutaneous Manifestations of Hemoblastosis. L. Martinotti.—p. 184. Cont'n.

Alleged Botryomycosis in Man.—Romano's deductions from three cases personally observed and the scanty literature on botryomycomas is that there is no identity between the disease in man and in horses. Even those with the most experience are dubious whether to class the nodule as a neoplasm or a granuloma, and the term "human botryomycosis" is misleading.

Pararenal Lipoma.—The woman of 29 died four hours after removal of the kidney with its totally encircling lipoma, the whole weighing 25 kg. The kidney and ureter though embedded deep in the tumor seemed to be normal.

Caustic Destruction of Cancer.—In the two inoperable cases of cancer of the nose and ear described, the disease retrogressed under local applications for the first four to eight days of sponges impregnated with a mixture of 1 gm. arsenic trioxid, As_2O_3, in 75 gm. alcohol and 75 gm. distilled water. The application was repeated after the blackish eschar was cast off, but while waiting for this the edges were painted with a little stronger mixture. The clinical cure of the extensive cancerous process (back of the neck and cheek or cheek and nose) was complete in a little over three months. The outcome was equally favorable in four other cases in which operative relief had been possible but had been refused. Involvement of glands is of course a contraindication for this corrosive treatment.

Manifestations in the Skin of Hemoblastosis.—In this second instalment of his extensive monograph, Martinotti discusses neoplastic and pseudoneoplastic processes, including myelomas, the cutaneous manifestations of lymphosarcomatosis, of granulomatosis in both the mucous membranes and the skin, fungoid mycoses, and leukemoid conditions, comparing the views and cases of different writers.

Gaceta Médica de Mexico, Mexico

August-Dec., 1920, **1**, Series 4, No. 7. First half reviewed, p. 897.

*The Brownian Movement. F. Ocaranza.—p. 510.
*Serotherapy of Typhus. J. E. Monjaras.—p. 529.
*What is the Best Treatment for Syphilis? Angel Brioso Vasconcelos.—p. 531.
*Fish in Extermination of Mosquitoes. M. E. Connor.—p. 543.

The So-Called Biologic Theory of the Brownian Movement.—Ocaranza rejects a biologic explanation for the brownian movement, explaining that it conforms to the laws of physics governing fluids and gases. There are no grounds for the assumption of a brownian micrococcus to explain the movement; it occurs when the physical condition invites it, and otherwise not.

Serotherapy of Typhus.—Monjaras cites some favorable experiences with an antiserum in treatment of typhus, and urges its general application in Mexico. He refers in particular to the work of Nicolle and Blaizot in this line.

What Is the Best Treatment of Syphilis?—The executive committee of the recent Mexican National Medical Congress invited Brioso to address the meeting on this subject. After outlining the treatment preferred by the leading authorities and that had stood the test of his own long and extensive experience, he gives a list of things which should NOT be done. He warns never to inject a concentrated solution of arsphenamin: if alkaline, it induces painful phlebitis; if acid, it may prove immediately fatal. This has already occurred in Mexico. Never begin with the maximal dose. Never give arsenic and mercury if the elimination through the kidneys is less than normal. Never begin with large doses of mercury or arsenicals by the subdural route. The amount must be increased only slowly and tentatively according to the tolerance. A few years ago, he relates, two patients in a local hospital were given by mistake an intraspinal injection of 1 cg. of HgCy; one of them died, and the other was completely paralyzed. In a case in his own practice, 0.43 mg. of mercuric chlorid induced a condition like status epilepticus in a patient with sclerogummatous meningitis.

Fish as Factor in Extermination of Yellow Fever.—Connor states that by placing fish in the water tanks, cisterns, barrels, etc., at Guayaquil, 30,000 of the water receptacles were freed from the larvae of mosquitoes in a very short time and with very little expense. The stegomyia might be called almost a domestic mosquito, he says, as it breeds in or near human dwellings, scarcely ever in marshes. Experiments with top minnows showed that they eat the larvae only when the water is free from organic matter, which they prefer to the larvae. A kind of sardine, known locally as the *chata*, feeds voraciously on the larvae, and it stands transportation well. It has the further advantage that it keeps close to the surface of the water except when frightened. This fish is not found very numerous, so the choice finally fell on the *chalaco* as the most satisfactory for small receptacles of water. These fishes have been costing half a centavo apiece, but the fish hatcheries now under way will soon provide them in abundance. The fish brought in are placed in a well the conditions of which are like those in the streams from which they were taken. After a few days they are transferred to a second well of the city water, and no further food is given them. Each inspector is then given the number of fish required for the tanks, etc., in his district, and one or more of the fishes is placed in each one, regardless of the presence or absence of larvae in the water at the time. The press and the sanitary inspectors have educated the public to protect the fish, and many families still have the same fish that was given them about eighteen months ago when the antimosquito campaign was begun. The value of the *chalaco* is evident from the fact that the stegomyias have been reduced to less than 2 per cent. which presages the approaching extinction of this species.

Repertorio de Medicina y Cirugía, Bogotá

May, 1921, **12**, No. 8

*The Pan-American Sanitary Conference. P. García Medina.—p. 406.
Dermatoses of the Legs. Sicilia.—p. 420.
Biology and General Pathology. R. Martínez Briceño.—p. 429. Cont'd.

The Pan-American Sanitary Conference.—This is the official report on sanitary conditions in Colombia presented at the Sixth International Pan-American Conference held recently at Montevideo. García Medina states that Colombia has escaped bubonic plague, and that there has been no cholera since 1851. There is no focus of yellow fever. Last year there were 1,300 cases of smallpox throughout the country but only 4 deaths, and vaccination is being done actively in all the seaports. Typhus is rare and is scarcely ever observed in the ports, as the climate is not favorable for lice. In 1915 there were 6,570 cases of leprosy known, and 80 per cent. of them are isolated. Notification is compulsory. A leper arriving in any of the ports is sent back or is sent to one of the three leprosariums in the country if he is a native. A hot and dry climate seems to modify the leprosy favorably. A law regulating the importation and sale of habit-forming drugs has been passed this year, and for fifteen years hygiene has been taught in the schools. Death certificates have to be signed by a registered physician. Dispensaries and sanatoriums for venereal diseases have been established at several points.

Revista de la Asoc. Médica Argentina, Buenos Aires

June, 1921, **34**, No. 200

*Biochemical Research on Vitamins. H. Damianovich.—p. 279.
*Clinical Research on Vitamins. C. Pillado Matheu.—p. 286.
*Action of Emetin on Heart. J. Guglielmetti and F. Arrillaga.—p. 291.
*Skin Changes in Hypophysectomized Frogs. L. Giusti and B. A. Houssay.—p. 294.
Darkfield Study of Blood Plasma. J. Llambias.—p. 299.
*Biochemical and Clinical Research on Vitamins. C. Pillado Matheu and H. Damianovich.—p. 303.
*Nonulcerative Hemorrhagic Rectitis. C. Bonorino Udaondo.—p. 393.
*Wilson's Disease in Adolescent. R. Chiappori.—p. 399.
Apparatus for Reduction of Fractures and Luxations Under Roentgen Control. G. Zorraquin and J. F. Merlo-Gómez.—p. 409.
Compass for Locating Foreign Bodies. C. Donovan.—p. 412.
*Pneumoradiography for Exploring the Kidney. H. H. Carelli and R. Finochietto.—p. 421.
*Induced Emphysema for Exploring the Kidney. H. H. Carelli and E. Sordelli.—p. 424.
*Hydatid Cysts of Bones. G. Zorraquin and J. F. Merlo Gómez.—p. 426.
*Treatment of Otitis Média and Interna. R. Nicolini and M. Balado.—p. 432.

Biochemical Research on Vitamins.—Damianovich found that all extracts rich in water soluble vitamin, even after boiling, activated the catalase extracted from the liver and also the lipase of the blood. The pancreas, the blood and the mucosa of the small intestine contained large amounts of this vitamin. The proportion grew less on a vitamin-free diet in his experimental research.

Clinical Research on Vitamins.—Pillado Matheu relates that healthy children increased in weight and the number of erythrocytes when fed with vitamin B. The experiences with it in 50 patients of all ages, in various pathologic conditions, confirmed the prompt benefit. Some patients with colitis improved so that they gained 5 kg. in one month. Only 3 of the total 50 failed to show a gain in weight. The erythrocytes ran up sometimes by a million a week until the normal proportion was reached. The beneficial effect on metabolism and nutrition became manifest in one or two days. He adds that the gruels and vegetable soups which have proved so useful for infants with alimentary intoxication are all rich in vitamins. He reiterates in conclusion that vitamins are not foods; they increase the tolerance for foods.

Action of Emetin on the Heart.—The research on dogs and frogs reported warns against the use of emetin by the vein, as it modifies the excitability and conductibility of the heart. It may induce dissociation of the ventricles and auricles and fatal fibrillation of the ventricles.

Hypophysectomy in Frogs.—Giusti and Houssay extirpated the pituitary in sixty frogs. There did not seem to be any disturbances thereafter except in the skin. Some were lively as usual, others more sluggish in their movements, but in all the green parts of the skin turned a dark bronze color and the white became grey or blackish. Normal frogs and trephined, and suprarenalectomized frogs kept in the same cages never showed this pigmentation of the hypophysectomized frogs. The horny layer of the skin in the latter grew much thicker.

Biochemical and Clinical Research on Vitamins.—Damianovich has been conducting extensive research with water soluble vitamin and an extract of liver, etc., the results establishing the energetic action of this vitamin as a catalyzer for the body ferments, especially for catalase and lipase. This biochemical aspect of the vitamins has been comparatively neglected hitherto, he says, while he regards this property of activator or catalyzer for the body ferments as of extreme importance for the welfare of the organism. He had Pillado Matheu carry the research into the clinic, and the detailed case histories confirm the stimulating action on the body ferments exerted by the same preparation of vitamins that he used in his experimental and chemical work. The infants and children had various digestive and nutritional disorders, but the metabolism showed marked improvement and the vital processes in general seemed to be stimulated to a higher plane, as is evident from the detailed case histories given of twenty-five children, including ten nurslings. The vitamin was obtained by autolysis from yeast in both branches of research, and was used in amounts of 0.1 or 0.2 c.c. of the extract obtained directly or by absorption by kaolin or loess sand, or fractioned with alcohol. The activation of the catalase proceeded with even as little as 0.05 c.c. of the extract, containing only 4 per cent. of solid matter, and after it had been boiled for fifteen minutes. Compare with abstracts above.

Nonulcerative Hemorrhagic Rectitis.—Bonorino's three cases of this kind were in two men of 25 and 36 and a woman of 25. Endoscopy showed merely congestion of the rectal mucosa or a few punctiform erosions. Recovery was soon complete under daily local applications of epinephrin, calcium chlorid and basic gallate of bismuth in a mucilaginous vehicle, with laudanum, introduced through a tube and retained as long as possible. The first symptoms had been the sudden onset of profuse bloody diarrhea, some of the stools pure blood, with tenesmus. Transient relief was obtained with opium, but the hemorrhage kept returning. The intervals since the first symptoms were six months, ten days and one month in his cases.

Wilson's Disease.—The first symptoms had been observed in the youth of 17 about a year before necropsy showed progressive degeneration of the lenticular nucleus with atrophic cirrhosis of the liver.

Pneumoradiography of Kidney Pelvis.—Carelli and Finochietto inject oxygen through the ureter catheter as for pyelography, and state that the results are as striking and instructive as with the best contrast suspension and, so far as calculi are concerned, much better. They give six roentgenograms to demonstrate the advantages of this simple and harmless method. The gas escapes through the bladder or is absorbed. The oxygen should never be drawn directly from the tank, and the flow should be arrested at the first sensation of pain.

Induced Emphysema for Exploring the Kidney.—Reviewed editorially.

Hydatid Cysts in Bones.—The two cases illustrated by Zorraquin and Merlo Gómez confirm the destructive action of a hydatid cyst by direct pressure and by a rarefying osteitis around it. In the cases described, the cyst was in a rib with, in one case, a second cyst in the ninth dorsal vertebra.

Radium Treatment of Otitis.—Nicolini and Balado report great benefit in 2 of 8 cases of sclerous otitis of the middle ear under 30 and 25 exposures to radium bromid; 2 others were improved with 14 and 22 exposures, and 4 other patients showed no improvement under from 9 to 23 applications of the radiotherapy. In a case of bilateral labyrinthitis with pronounced deafness and tinnitus, great improvement was realized under 45 exposures. Very slight improvement was realized in another case by 23 applications. This was a case of probable bilateral hemorrhage in the labyrinth, following chronic suppurative otitis. The results are regarded as very promising on the whole, fully 50 per cent. of the 10 patients having been materially benefited.

Semana Médica, Buenos Aires

June 30, 1921, **28,** No. 26

*Centennial of Dr. G. Rawson.—p. 757.
Priority of Large Doses in Intravenous Serotherapy. M. Lubière.—p. 782.
Vaccine Treatment of Pleurisy with Tachycardia. A. Mut.—p. 783.
The Ten Cancer Commandments. J. Regnault.—p. 785.
Plasmogenesis. A. L. Herrera.—p. 787.

Centennial of Argentine Medical Statesman and Hygienist.—This historical tribute to Dr. G. Rawson was mentioned recently in the news columns. The addresses at the National Academy of Medicine and elsewhere are reproduced here.

July 21, 1921, **28,** No. 29

*Training Specialists. E. B. Demaria.—p. 65.
Research on Carbamic Esters. J. A. Sánchez.—p. 72.
*Buttermilk Plus Fat in Infant Feeding. E. Gaing.—p. 75.
Hemoptysis According to Sex. A. Cetrangolo.—p. 83.
Modern Construction of Hospitals. E. Giralt.—p. 85.

Training of Specialists.—Demaría compares the technic of ophthalmology in different countries, and describes the systems in vogue in the United States, and how they can be adapted to Argentina.

Buttermilk Plus Fat in Infant Feeding.—To be more exact, Gaing defines the preparation he uses as an acid hyperfat milk. He mixes 3 parts of separator cream with 7 parts of fresh cow's milk averaging about 3 per cent. fat. One or two spoonfuls of sour milk from the day before are then added and the whole is set aside for twenty-four hours in a warm place, stirring a few times. When soured to 35 degrees Soxhlet it is boiled up, stirring constantly with a cream beater, and it is then kept on ice. This food is proving most excellent to supplement the breast and for beginning artificial feeding early. Many of the 150 young infants fed with this acid, hyperfat milk gained from 50 to 100 gm. a day in some weeks. He gives the details of 100 cases.

Siglo Médico, Madrid

June 4, 1921, **68,** No. 3521

*Pains in Posterior Roots. J. M. de Villaverde.—p. 525.
Puerperal Eclampsia. Fernando Villanueva.—p. 528.
Abdominal Hysterectomy, Faure.—p. 530.

Painful Radiculitis.—Villaverde is inclined to accept syphilis as a common cause for pains in the posterior roots. These pains are liable to be ascribed to various organs and,

if the syphilis has escaped recognition, the differential diagnosis may be puzzling, especially when more than one root is involved. In a typical case illustrated, the man of 29 complained of pains in the left shoulder spreading to the hand. They grew constantly more severe and the arm grew weak and thin, with vasomotor disturbances. Lumbar puncture, he says, will distinguish between dorsal radiculitis and intercostal neuralgia. Tabes may develop with monosymptomatic pains. In another class of cases the pains occur at irregular intervals and develop slowly, and no symptoms of any other kind can be discovered. They may be an abortive form of tabes.

Deutsches Archiv für klinische Medizin, Leipzig

Aug. 12, 1921, **137**, No. 1-2

*Origin of Human Speech. B. Naunyn.—p. 1.
*Meningitis with Tuberculous Choroiditis. W. Gilbert.—p. 21.
*Pneumonic Form of Paratyphoid. G. Pincsohn.—p. 25.
*Derangement of Conduction of Impulse. E. Edens.—p. 32.
*Bilirubin Colorimeter. E. Meulengracht.—p. 38.
Clinical and Therapeutic Aspect of Influenza. K. Glaessner.—p. 47.
*Conduction of Impulse Modified by Atropin. E. Weiser.—p. 61.
*Diagnosis of Latent Edema. F. Kauffmann.—p. 69.
*Bilirubin in Duodenal Juice, etc. G. Lepehne.—p. 78.
*Velocity of Pulse Wave. W. Weitz and C. Hartmann.—p. 91.
*Clinical Electrocardiography. E. W. Taschenberg.—p. 101.

Evolution of Speech.—Naunyn queries why have not the higher animals developed speech? An abyss separates them in this respect from even the lowest grade of human beings. Romanes has suggested that some casual anatomic factor seems to be the only explanation for the fact that the higher animals have not happened to use simple words to communicate simple ideas. The "da-da-da" of the happy babe is like the singing of the birds, and both display a tendency to copy others. One crowing rooster will start all in the neighborhood to crowing, and the babe soon tries to imitate the words it hears spoken. Why does the infant progress beyond this echo-speech to actual speech, while birds never do? Birds and humans have also in common the erect attitude, and they are the only ones that walk erect. Monkeys have four hands and no feet. The arms of the birds developed into wings, and they are used symmetrically. When man began to walk erect and use his hands, the right hand was found more convenient for attack and defense, gestures, and the ordinary uses of life, the left hand being used more for carrying things. This greater use of the right hand—not the more abundant blood supply in the left hemisphere; animals have the latter—was what stimulated the left hemisphere of the brain to higher development. This provided Romanes' "casual anatomic factor" that distinguishes man from animals and made articulate speech possible. It is a consequence of man's walking erect and using his hands as hands. Speaking and the organ of speech developed together. The singing of birds and their balancing power are by-products of the evolution of their organ of hearing, as also music in man, along with rhythm and dancing, although a muscle sense evidently cooperates with the internal ear.

Involvement of Meninges with Tuberculous Choroiditis.—Gilbert noted headache over the entire head for which the meninges were evidently responsible in eight of ten cases of recent tuberculous choroiditis. In some there was also stiff neck. These meningeal symptoms subsided completely in two or three months. Obstinate headache in young persons with negative findings otherwise should suggest the possibility of this benign form of tuberculous meningitis, secondary to choroiditis, even when the latter has not yet made its presence felt.

Pneumonic Paratyphoid.—After a brief period of malaise and diarrhea pleural and pulmonary symptoms predominated, with hemorrhagic sputum. Paratyphoid B bacilli were cultivated from the sputum for several weeks after defervescence the fifth week. The man was still coughing and expectorating a little five months later.

Conduction of Impulse.—The electrocardiograms show a most unusual manner of retarding of the impulse in the previously healthy man of thirty-eight after acute articular rheumatism.

Bilirubin Colorimeter.—Meulengracht uses 0.05 parts of potassium bichromate in 500 parts distilled water with 2 drops of sulphuric acid. The bilirubin content of the blood is shown by the number of 0.5 c.c. of physiologic sodium chlorid solution that have to be added to the plasma to bring the tint to correspond. He expatiates on the simplicity and the importance of the test in revealing the insidious passage of bile into the blood.

Medicinal Influencing of Conduction of Impulse.—Extrasystoles developed without apparent cause in the robust man of 36 and the atypical electrocardiogram was modified by atropin.

Latent Edema.—Kauffmann injected subcutaneously 10 c.c. of saline, and a drum recorded the rise and the fall of the level of the skin. In the healthy, by the end of the hour, the skin had always returned to its former level, showing normal resorption of the fluid. In heart disease resorption was retarded, and this latent tendency to edema was sometimes the only sign of circulatory insufficiency. The significance of this latent edema was emphasized by the increased output of urine that followed when these patients had conditions for the circulation improved in certain regions, as, for example, by raising the foot of the bed after test ingestion of water. This has no effect on diuresis in the normal, nor in persons with pronounced edema. It is therefore a simple means for detecting incipient edema.

Bilirubin in Cadaver Bile and in Duodenal Juice.—The colorimeter findings in bile from 25 cadavers indicated bilirubin content between 100 and 250 units, as a rule, but in jaundice, up to 800 units. In the duodenum contents, after various provocative measures to force out bile from the gallbladder, the highest bilirubin figure was obtained in hemolytic jaundice and pernicious anemia.

Velocity of Pulse Wave.—The extensive research described seems to justify the assumption that the muscular walls of the arterial system relax as the blood wave enters, and contract behind it to force it along.

Clinical Electrocardiography.—Taschenberg discusses paroxysmal arrhythmia and a case of normal heart beat with auricular fibrillation under the influence of digitalis. He also seeks to explain the mechanism of dissociation and interference of auricles and ventricle with acceleration of the heart beat.

Deutsche medizinische Wochenschrift, Berlin

July 21, 1921, **47**, No. 29

Treatment of Surgical Tuberculosis. E. Lexer.—p. 821.
Treatment for Callosities. P. G. Unna.—p. 822.
Permeability of Red Corpuscles. E. Wiechmann.—p. 824.
Extended Use of "Thick Blood Drop." V. Schilling.—p. 825.
*Leukocyte Count in Cancer and Achylia Gastrica. Weinberg.—p. 826.
Ulcers of Vocal Cords in Influenza. J. Wätjen.—p. 829.
Skin Tuberculin Test in Surgical Tuberculosis. Lotsch and Hübner. p. 830.
*Sensitization in Roentgen-Ray Therapy. J. Palugyay.—p. 831.
Immunization with Detoxicated Toxins. E. Löwenstein.—p. 833.
System for Diphtheria Prophylaxis. K. Kassowitz.—p. 834.
Modification of Mercury Lamp for Phototherapy. Axmann.—p. 835.
Absorbent Peat Hospital Bed. E. Winckler.—p. 836.
Present Status of Psychanalysis. I. H. Schultz.—p. 836.
Hemorrhage During the Second Half of Pregnancy and During Labor; Placenta Praevia. L. Blumreich.—p. 837.

Diagnostic Significance of Leukocyte Blood Count for Carcinoma and Achylia Gastrica.—Weinberg recalls the recent statement of C. Moewes that lymphopenia is a symptom that deserves to be accorded the same consideration as the result of the chemical examination of the gastric juice, Moewes having frequently been able to diagnose "carcinoma" solely from the blood findings. Weinberg found, in his 60 cases of carcinoma of the alimentary tract, a normal leukocyte count in 24, or 40 per cent.; leukocytosis in 23, or 38⅓ per cent., and leukopenia in 13, or 21⅔ per cent. Comparing the conditions in carcinoma and achylia gastrica, he found, in 68 cases of carcinoma, the leukocytes normal in 26, increased in 27 and diminished in 15 cases; in 67 cases of achylia, the leukocytes were normal in 37, increased in 7 and diminished in 23 cases. It will be noted that in achylia there were only 7 cases of leukocytosis as compared with 27 cases associated with carcinoma. Leukocytosis must, therefore, be regarded as indicating carcinoma rather than achylia gastrica. Lymphocytosis, however, was found to indicate rather achylia gastrica, and lymphopenia carcinoma.

Sensitization in Roentgen-Ray Treatment. — Palugyay reports that the infiltration of the tissues with potassium iodid before irradiation does not facilitate the cure to any marked extent, which is in agreement with Lenk's findings in his series of investigations. Aside from the negative results of the method, he opposes the use of potassium iodid most decidedly on account of the danger of formation of fistulas.

Deutsche Zeitschrift für Chirurgie, Leipzig

July, 1921, **165**, No. 1-2

*Ameba as Responsible for Gastric Ulcer. E. Birt.—p. 1.
*Results of Herniotomies. Niedlich.—p. 34.
*Postoperative Complications in the Lungs. F. Mandl.—p. 67.
*Flail Knee Joint. F. R. Mühlhaus.—p. 86.
*Tuberculosis of Male Genital Organs. L. Sussig.—p. 101.

The Ameba in Relation to Gastric and Duodenal Ulcer.—Birt's eleven years of surgical work at Shanghai have convinced him that the ameba is responsible for a large proportion of typical gastric and duodenal ulcers. He queries whether this may not be the unsuspected cause in other countries in the same way as in China. His retrospective diagnosis in many cases of membranous colitis from his younger days is also ameba infestation, although he never thought of looking for the ameba at the time. In four cases the patients had acquired the amebic dysentery in Europe but it had not been recognized until they arrived in China. Two were from Denmark and one each from Sweden and Germany, and all had had years of gastro-intestinal disturbances, explained by the discovery of the ameba. If the search for the ameba were a routine practice in the temperate zones he is positive that it would clear up many cases of gastric and duodenal ulcer. In his 32 cases of the kind all were operated on but 2, and 21 were completely and 5 partially cured and 3 improved; 3 died. In the 24 cases of pronounced hyperacidity, the results were bad in 5 as also in 3 of the 4 with anacidity. Nothing but an exploratory laparotomy, he says, lifts the veil obscuring this grave and often surprising disease, with its danger of malignant degeneration. This danger is a potent argument against wasting time on internal measures. It is hard to say exactly when malignant degeneration begins; in one case of a four year mastoid fistula, no trace of cancer was discovered, but inoperable cancer was found four months later. He had a similar experience also in a case of appendicitic spontaneous fistula, and one of an osteomyelitic fistula on the leg. In treatment of gastric ulcer from amebiasis, he warns to refrain as much as possible from resection. Emetin has proved its reliability in curing not only dysentery but liver abscess as well.

Results of Herniotomies.—Niedlich has been reexamining recently a number of patients among those operated on years ago for inguinal hernia (911); femoral (152); umbilical (53), and epigastric (32). With the Hackenbruch-Drüner method there was no recurrence in over 92 per cent.; with the Bassini in 91.4 per cent. in the lateral cases and 77 per cent. in the median. The patients were mostly miners, doing hard work.

Postoperative Complications in the Lungs.—Mandl reports from Hochenegg's service at Vienna that he found postoperative complications in only 8 per cent. of 128 cases of major operations preceded by routine intramuscular injection of a digitalis preparation, while they occurred in 27 per cent. of 87 similar cases not given the digitalis. He was surprised to find pulmonary complications so common after local anesthesia: 12.1 per cent. in 189 goiter operations; 26.7 per cent. in 97 under general anesthesia. The corresponding figures in herniotomies were 10.9 local in 227 cases and 9.8 in 415 general. In cancer gastro-enterostomy cases 22.2 per cent. in 54 local and 15.9 per cent. in 44 general. With resection of the stomach, 31 per cent. of 74 local and 48.5 per cent. of 35 general. In the ulcer cases the proportion was respectively 11.8 and 22.5 in the 226 local cases and 16.5 and 28.6 in the 14 general cases. Independent of the mode of anesthesia, the farther from the respiratory portion of the abdomen, the less frequent the lung complications: in 1379 abdominal and hernia operations, the general average was 14.5 per cent.; in 1585 operations on head, limbs, mamma or rectum, only in 8.5 per cent. This suggests the factor retention pneumonia, and the digitalis combats this by its action on the vessels in the lungs as well as in the digestive tract.

Flail Knee Joint.—Mühlhaus presents data to show that muscular insufficiency above is the essential cause of the flail joint in many cases, and that correction of this restores function to the knee.

Genesis of Tuberculosis of Male Genital Organs.—Sussig examined about 6,000 frozen sections of the genital organs in complete series from each of 13 cadavers with recent miliary tuberculosis without appreciable tuberculous changes in these organs. His research included, further, 17 other tuberculous cadavers. One of the practical results is that a tuberculous process in any of the male genital organs has little prospect of being cured by operative measures unless the organ involved is the only seat of the disease in the genitals, and it is removed early. The extreme tendency of tuberculous processes in the testicle and epididymis to break through early into the canaliculi insures the early infection of the secretion from this organ, and hence secondary infection from this secretion. Castration does not insure a radical cure when the prostate or seminal vessels are already involved. Simmonds found this to be the case in 19 and 17 necropsies after castration. A tuberculous process in the prostate or seminal vesicles is liable to persist localized longer than is the case with testicle and epididymis lesions.

Medizinische Klinik, Berlin

July 17, 1921, **17**, No. 29

*Epidemic Encephalitis and Influenza. P. Schröder and R. Pophal.—p. 863.
*Improved Darkfield Microscopy. E. Hoffmann.—p. 864.
*Temperature Sense of the Stomach. G. Ganter.—p. 865.
*Rousing of Malaria by Arsphenamin. F. Glaser.—p. 867.
*Hilus Gland Disease in Adults. W. Rüppel.—p. 868.
*Pituitary Extract as Kidney Test. F. Brunn.—p. 871.
*Alcohol Treatment of Trigeminal Neuralgia. H. Kolodziej.—p. 872.
Sublimate Salvarsan. F. Fischl and B. Schnepp.—p. 873.
*Examination of Standing Subject. Krieg.—p. 874.
*Pessary in Prophylaxis of Gonorrhea. I. Saudek.—p. 875.
Theory of Serology of Syphilis. E. Epstein and Paul.—p. 877. Cont'd.

Influenza Encephalitis.—Schröder and Pophal have found records of twelve cases of encephalitis following influenza. They comment on the wide diversity between the pathologic anatomic findings and those of epidemic encephalitis. They insist that this diversity disproves the connection between influenza and epidemic encephalitis, which some have asserted.

Improved Darkfield Microscopy. — Hoffmann's method of darkfield work includes the most brilliant illumination and a somewhat opaque disk, oiled or not, between the lamp and the microscope mirror. The peculiarly vivid appearance of the specimens with this *leuchtfeld* method, as he calls it, justifies the hope that staining methods can be found that will show up the still invisible filtrable viruses by this means. It is odd that the stained specimens show in complementary colors. The finest flagella and most minute spirochetes are plainly visible, as also the parasites in the "thick drop."

Sensitiveness of the Stomach to Temperature. — Ganter's research apparently demonstrates that the stomach wall is sensitive to temperature, but only to a very limited extent.

Arsphenamin Fatality.—Glaser does not know of any other instance than the one he reports of the fatal rousing of a latent tropical malaria by injections of arsphenamin. The man of 28 was supposed to be entirely healthy when he acquired syphilis in January, 1921, and was given a ten weeks' course of neo-arsphenamin and mercury. Two days afterward fulminating malaria developed, fatal in two weeks. During his internment in England he had been in contact with malarial subjects from India, and probably had become an unsuspected carrier of the parasites. There had been some fever after the second injection of the arsenical, compelling suspension and bed rest for a week. This should have warned of the possibility of latent malaria.

Tuberculous Hilus Glands in Adults.—Rüppel has witnessed in a number of cases the final subsidence of what seemed to be tuberculous enlargement of glands at the hilus in both children and adults, showing that this was merely a sequel of influenza. With true tuberculous glandular disease, the paucity of the physical findings is often in direct contrast to the extensive changes shown by the roentgen rays.

Pituitary Extracts as Test for Kidney Functioning.—Brunn has found that after a subcutaneous injection of pituitary

extract, the normal kidneys invariably secrete a highly concentrated urine. With diseased kidneys, the specific gravity does not increase after the test injection of pituitary extract, not even when the intake of fluids is restricted. This test is particularly useful with a tendency to dropsy, as the response is independent of extrarenal influences. A further advantage is that the cooperation of the patient is not required. If the specific gravity increases to 1.020 or 1.022, he thinks that grave kidney disease can be excluded. In three cases of chronic nephritis the specific gravity persisted at 1.012 to 1.015, both with this pituitary test and with test restriction of fluids.

Treatment of Trigeminal Neuralgia.—In the severe case described a complete cure was realized by two injections of 1 c.c. of 70 per cent. alcohol into the gasserian ganglion. The eye on that side was protected with a watch-glass dressing, boricated salve applied to the lower lid, and atropin instilled. In this way the dreaded neuroparalytic keratitis was warded off.

Examination of Standing Patient.—Krieg expatiates on the more instructive findings with the abdomen and heart when the subject stands. For palpation of the abdomen, he should bend forward at an angle of 35 degrees, the arms hanging loose and the chin sunk on the chest. Even the spine can be palpated through the abdomen by this means, and the liver "hefted" in the hand. The examiner stands at the side.

Pessary in Prophylaxis of Gonorrhea in the Male.—Saudek suggests that an occlusive pessary worn by the woman, especially if medicated, might aid in warding off the transmission of infection from a gonococcus cervicitis to the male.

Münchener medizinische Wochenschrift, Munich

July 22, 1921, **68**, No. 29

Economic Conditions of Greifswald Students. Friedberger.—p. 901.
Diseases of the Orient. L. R. Müller.—p. 905.
Effect of Exertion on Blood Pressure. O. Bruns.—p. 907.
Observations on Capillary Circulation. G. Magnus.—p. 908.
Irradiation of Experimental Malignant Tumors. Wetzel.—p. 910.
The Skin as an Immunizing Organ. E. F. Müller.—p. 912.
*Predisposition to Epidemic Encephalitis. W. Villinger.—p. 913.
*Demonstration of Integrity of Placenta. P. Ederer.—p. 916.
*High-Percentage Glucose Solution in Eclampsia. Hugel.—p. 916.
Typhoid Bacilli in Gallbladder. E. Metge.—p. 917.
Pylorospasm and Related Conditions. J. K. Friedjung.—p. 919.
Treatment of Rachitic Leg Curvatures. E. Jacobsen.—p. 920.
Infection of Tongue from Vaccination Pustule. Langsch.—p. 920.
Significance of Abnormal Blood Pressure. K. Grassmann.—p. 921.

Predisposition to Epidemic Encephalitis.—From observations that he has been making during the last year or two, Villinger concludes that epidemic encephalitis develops probably only on the basis of a constitutional predisposition, which finds its clinical expression in the manifestations of lymphatism and a hyperexcitability of the vegetative nervous system, and also in more or less marked psychopathic features. Other constitutional factors, though not so fully understood as yet, are doubtless connected with an individual constitutional anomaly of certain parts of the central nervous system, especially of the extrapyramidal motor centers. The onset of the disease is brought about by a specific exogenous injury, which must be connected in some way with the influenza virus.

Demonstration of Integrity of the Placenta.—Ederer has tried out Küster's milk test in 250 cases, and, while not ascribing to it absolute reliability, he found it possessed great diagnostic value. He used commonly human milk, although cows' milk and various white substances may be used. Ordinarily, 200 c.c. of the fluid were injected into the umbilical vein. If at any point the fluid appears, it points to a vascular injury, or possibly a tissue defect. In case of defects of the placenta, Ederer found that the injected milk either spurted in a jet from the torn vessel or flowed out at least profusely. If the test is positive, it does not furnish absolute proof, but rouses to double caution, while a negative result proves almost certainly the integrity of the placenta. It is only fair to add, he says, that Kirstein, after long use, says the test has no practical value.

Treatment of Eclampsia with a High-Percentage Sugar Solution.—Hugel recalls the often stated fact that during the war eclampsia decreased markedly. He also states that in his province (the Palatinate) eclampsia has always been uncommon, and explains this by the fact that the diet there is rich in vegetables. In two recent cases of eclampsia he used a sugar solution with marked success. Professor Heidenhain also tried it in a severe case with good results. For the infusion he used a 10 per cent. glucose solution. Not less than 500 gm. should be given; 1,000 gm. will be better if the patients are not weakly. The temperature of the solution should be about 36 C. Injection should be done slowly, taking an hour or more. The injections are made into the median vein at the elbow.

Zeitschrift für Kinderheilkunde, Berlin

Aug. 19, 1921, **30**, No. 1-2

*Rate of Development. B. Salge.—p. 1.
*The Skin and Sweat Glands in the Newborn. J. Becker.—p. 3.
*Development of Striated Muscle. A. Schmitz.—p. 21.
*State of Nourishment and Body Measurements. A. Huth.—p. 39.
*Acute Suprarenal Insufficiency in Infancy. M. Victor.—p. 44.
*Experimental Digestion of Milk. M. Pfaundler and K. Schübel.—p. 55.
*Elimination of Ingested Water by Infants. F. Wengraf.—p. 79.
*Injection of Blood in Infants. Zoltáu v. Barabás.—p. 86.
*Convalescents' Serum in Prophylaxis of Measles. P. Kutter.—p. 90.
*Syntropia of Pathologic Conditions. M. Pfaundler and L. v. Seht.—p. 100.

Rapidity of Development in Relation to the Constitution.—Salge points out that certain features which we regard as constitutional anomalies are in fact merely exaggerations of normal processes or they develop prematurely or too late. Some different parts may develop in advance of or later than others in individual cases. A series of researches have been undertaken in his service along this line. Two reports of them follow:

The Skin and Sweat Glands in the Fetus and New-Born.—This communication from Becker is the first article in the series outlined in the preceding paragraph. The research confirmed the wide differences in the rate of development of different organs and parts, showing constitutional differences in different individuals.

Development of Striated Muscle.—Schmitz found similar differences in the development of the muscles.

State of Nourishment and Physical Measurements.—Huth applied to 862 Munich children several of the formulas most in vogue as an index of the state of nourishment, but found them all disappointing. In 70 much undernourished children the Rohrer index corresponded to the clinical findings only in 20 per cent. while Huth's "weight quotient" corresponded in 50 per cent. A group of 31 children of the fifth grade were examined with seven index formulas, and the index that harmonized best with the general aspect was the Sinion and Pignet index. That is the chest measure in cm. plus the weight in kg. subtracted from the height. This was the only index that gave a different figure for each child. But even with this, there was no dependable correlation with the actual state of nourishment.

Acute Suprarenal Insufficiency in Infants.—The sudden onset of the severe symptoms in the 14 months male babe suggested poisoning, but necropsy the third day showed almost complete destruction of the suprarenals. A second case came to necropsy two days later, in a 7 months male infant. Victor's retrospective diagnosis by exclusion in the first case is that the suprarenals had been injured during the difficult delivery. They had sufficed during the first months of life, but broke down completely as greater demands were made on them as the child grew, aided perhaps by some infection. In the second case, a fulminating sepsis ran such an acute course that it came to hemorrhages only in the suprarenals and skin. The convulsions in the midst of apparently complete health, the soft irregular pulse and cyanosis, contracted pupils and stupor might suggest the lack of epinephrin in such cases and call for its injection. In both infants the thymus was exceptionally large.

Experimental Research on Digestion of Milk.—The method of research applied is advocated as simple and instructive. In a 6 day old goat kid, through a laparotomy incision, 100 c.c. warm fresh cow's milk was injected into the upper small intestine, and the same amount of fresh goat milk was injected into the lower part, and each 2 m. portion was tied

off separately. The kid was kept in a special cage, and four hours later the kid was bled to death and the two milk segments compared. Similar tests were applied to two other kids, and the findings coincided in all, testifying to the more difficult digestion of the cow's milk and its slower and less complete absorption. The residue found seemed less well digested, there being more residue and it being more acid than the goat milk. The two kinds of milk were poured into the oral or anal segment in turn in the different animals. In all, the albumin and sugar passed in appreciable amounts into the urine.

Elimination of Water by Infants.—Wengraf's tests demonstrated that the water eliminating capacity of the kidneys is fully developed even in the first days of life.

Injection of Blood in Treatment of Infants.—Barabás reports excellent results from injection of from 1 to 15 c.c. of the mother's blood, repeated every three or five days, to a total of six or seven injections and not over 50 c.c. of blood. The eight infants all displayed a pronounced tendency to atrophia, the weight running down or keeping long stationary. One infant had gained only 100 gm. in two months, but under these injections it increased 140 gm. a week, to a total of 1,270 gm. during the course. In four cases with desquamating erythrodermia the skin cleared up at the same time, and he is convinced that the prompt reaction to the injection of blood was responsible for the turn for the better. The amounts of blood were too small to have any direct action; the blood probably contained some enzyme or vitamin that the child organism happened to be needing.

Convalescents' Serum in Prophylaxis of Measles.—Kutter followed Degkwitz' directions in 145 cases, seeking to ward off measles after supposed exposure in various institutions and in the home. The success was complete in 107 instances; notwithstanding close contact none developed the disease. His experience has confirmed the full contagiousness of even an extremely rudimentary form of measles. In 2 cases the serum of children who had been infected but had had the infection stifled by the convalescents' serum, yielded serum which displayed a protecting action when injected into other children. Degkwitz has reported a similar experience in 6 instances. There were only 4 failures in the total 145 experiences, and the cause for these failures is still a mystery. The same serum effectually protected others.

Associated Diseases.—Pfaundler and Seht give a large table showing right and left a vertical list of twenty-seven pathologic conditions, and at the top the same list printed horizontally, the figures in the squares showing the number of cases in which more than one pathologic condition was found. They call this the syntropia of disease conditions, and their table of 28,090 cases shows a number of unexpected coincidences of this kind. They have worked out various charts and formulas to express the findings but add that similar syntropias have long been known or assumed. They express in objective form what has been merely a vague impression hitherto.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

July 16, 1921, **2**, No. 3

*Serodiagnosis of Carcinoma. N. Waterman.—p. 309.
*Pathology of the Blood. J. Lankhout.—p. 322.
*Public Health Service in Netherlands Indies. G. van G. Stort.—p. 328 and p. 331.
*Gastro-Intestinal Fibromas. J. van Woerden.—p. 336.
*Steinach's So-Called Puberty Gland. M. W. Woerdeman.—p. 343.
*Medical Impressions of Brazil. C. D. de Langen.—p. 366.

Serodiagnosis of Cancer.—Waterman describes research with the Abderhalden method of serodiagnosis in ninety-seven tests. His conclusions are that the protective ferment theory is still unproven and that the conditions are much more complex than Abderhalden, Pregl and de Crinis assume.

Pathology of the Blood.—In the first of what Lankhout records as "three remarkable cases" the stormy onset of general infection, with enlargement of glands, was accompanied by extreme lymphocytosis. The diagnosis of acute lymphatic leukemia was disproved by the gradual and complete recovery. In the second case, a healthy middle-aged man developed prurigo and intense eosinophilia, the hair dropping out. Dermatologic treatment failed to benefit but recovery ensued under arsenical treatment. In the third case paroxysmal hemoglobinuria recurred frequently in the youth of 17. It could not be elicited by chilling, and there has been no return since early in 1920. On the last occasion the hemoglobinuria developed after a fatiguing walk.

The Public Health Service in Netherlands East Indies.—Stort expatiates on the official medical work in the Dutch Indies, its interest and importance and the requirements for the service.

Gastro-Intestinal Fibromas.—The huge fibromyoma removed from the woman of 50 had its pedicle in the mesentery and had grown to the stomach.

The Puberty Gland.—Woerdeman warns that Steinach's conception of the puberty gland is by no means definitely established as yet; he reviews some of the evidence to date.

Medical Impressions of Brazil.—De Langen is chief of the public health service of the Dutch East Indies. He compares the work of the public health service in Brazil at large with that in Java, etc., and remarks that if Rio de Janeiro had the physical features of Batavia, even Oswaldo Cruz could not have exterminated yellow fever in three years.

Ugeskrift for Læger, Copenhagen

July 28, 1921, **83**, No. 30

*Serotherapy of Diphtheria. V. Bie.—p. 983. Con'n No. 32, p. 1052.

Treatment of Diphtheria.—For the last year or two it has been Bie's routine practice to inject antitoxin in doses up to 80,000 or 100,000 units in the severer cases to a total of 160,000 units in the first twenty-four or thirty-six hours in children under 10, or 220,000 units in children older than this. About 20 c.c. of the first dose is given by the vein, all the other injections are given intramuscularly. In the milder cases the first dose is from 4,000 to 40,000, not repeated unless the membranes spread. Since these large doses have been introduced, there have been no deaths from respiratory paralysis, and the mortality in the very gravest cases has been reduced from an average of 52 to 22 per cent. The less severe cases ran a harmless course. The proportion of very severe cases has doubled since 1896, but the total mortality has declined from 2.6 per cent. in 869 cases in 1917 to 0.7 per cent. in 1,341 cases since these large doses have been the rule.

Aug. 11, 1921, **83**, No. 32

Epidemic Encephalitis; Eight Cases. J. E. Holst.—p. 1043.
Bilateral Anophthalmos. Knud Bierring.—p. 1051.

Aug. 18, 1921, **83**, No. 33

*Glycosuria of Mixed Nature. J. E. Holst.—p. 1072.
Prohibition and Reduction of the Death Rate. M. Hindhede.—p. 1082.

Glycosuria of Mixed Origin.—Holst's patient, a man of 47, had been known to have glycosuria for twenty-three years, but there were no other symptoms of diabetes, and after five years of more or less restriction of the diet he abandoned all restrictions, and felt constantly well until the last six months. He now presents the features of both the renal and the diabetic forms of glycosuria: continual glycosuria with low sugar content of the blood but no signs of diabetes except that the blood sugar curve corresponds to the diabetic type and that the assimilating power is low. Holst compares this case with the few somewhat similar ones on record, explaining that with normal carbohydrate metabolism the threshold may be so low as to allow alimentary glycosuria of the renal type, and, if extremely low, severe renal diabetes. In the class with pathologic but not progressively pathologic carbohydrate metabolism, there is benign alimentary glycosuria of the diabetic type if the threshold is high. If it is low, the alimentary glycosuria is mild but it is of the combined diabetic and renal type, as in the case here described. With extremely low threshold, we encounter the so-called transitional types. If the hypofunction of carbohydrate metabolism is progressive, then there is true diabetes mellitus, or malignant alimentary glycosuria of the diabetic type. A casual coincidence of a low threshold with substandard carbohydrate metabolism thus explains these puzzling stationary cases. They had better be managed, however, he says, as if they were cases of mild diabetes, as there is always a possibility of a transition into the progressive form although there is no record of such to date.